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Cervical cancer, proxies for HPV exposure, screening scare and use of proximal and distal defense behaviors in fear buffering

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Foreword

Foreword

Stichting Lobi, the association in Suriname providing reproductive health services, initiated preventive cancer screening activities in 1979. Since then, the association focused on increasing awareness of the risk of cervical cancer and promoting preventive examinations among women. I, Glenn Leckie became involved with Lobi as a counsellor in 1978 and took the position of director in 1982. To enable the preventive cervical cancer screening, in collaboration with the pathologist Prof. Vrede Lobi trained about 12 analysts in cytology and with this number of technicians Suriname was in an advantage position , because there was a serious scarcity scarce in the region for cyto-technicians. However, most of the trained technicians left the country to work for better salaries in developed countries, forcing Lobi to repeat this training. This and an upgrade training was done in the mid nineties. The difference with the first training was that the Ministry of Health did recognize this certificate. In 1984 I had the privilege to receive from the Ministry of Health a letter which recognized Lobi as a Health Care institute of good standing. In specific words, the director of the Ministry of health said: “The time has come that Lobi now enters the Ministry through the front door”. This allowed for the participation in policy making meetings of the Ministry of health and other Ministries regarding reproductive health issues, with a special focus on youth issues and prevention of cervical cancer. Besides the training of cyto-technicians, Lobi provided screening services and provided relevant government and non-governmental organizations with incidence data as well as behavior information of its clients. In 1995, the Ministry of Health decided to assign higher priority to the prevention of cervical cancer and it was not accidental that Lobi was given the forerunner role in this endeavour. The same year, I, Glenn Leckie, Director of Stichting Lobi and Antoon Grünberg, Medical Director of Stichting Lobi started brainstorming and writing a project to implement the Ministry of Health’s intention to conduct a nationwide cervical cancer screening among women of reproductive age in Suriname.

The ministry subsequently established a committee to anticipate the discontinuation of the so-called RLA arrangement, which provided the opportunity for seriously ill Surinamese nationals to receive treatment abroad. The patients requesting funding for treatment abroad were primarily cardiac patients and those with cancer, including cervical cancer. The greatest numbers of requests were for treatment for women with cervical cancer.

Stichting Lobi served as the implementing agency for the first national screening program launched in 1998, assisting with the collection of data and the writing of the project proposal, based on assessed priorities, global and specific objectives. Leckie and Grünberg wrote the project proposal, which included an epidemiological and behavioral study to develop a better picture of cervical cancer among women

in Suriname, and would provide data for follow-up preventive programs, in accordance with the aspiration of the Ministry of Health
The medical director was responsible for the design and implementation of the medical/epidemiological aspects of the study, while the director of Stichting Lobi finalized the project proposal. The project financing was requested from development funds managed by the Surinamese and Dutch governments. After a lot of formal and informal lobbying and after receiving approval from the Ministry of Health, the Ministry of Planning and Development Cooperation and the Dutch Government, the funds were released. Implementation and management of this project which was named a "wagon-train approach", because several wagons of the train arrived one after the other. The first wagon of the train was to do an assessment of the formal and informal structures in the area especially looking at women and other groups which could participate in the awareness and motivation campaign. The second wagon was to organize the local assistance, create awareness for the screening campaign and motivate the women to go to the chosen site for the examination on the specific dates. The next wagon was to urge the women a few days before and on the days of the examination, preferably by local women authorities, to participate in the screening program. The last wagon was to give the women their results, most of the time in collaboration with the local existing health structure and available health workers. Where needed the last wagon arrived in the area for examinations of women who for whatever reason could not participate in the campaign and where local health workers were able to mobilize for a second screening visit.
This approach has earned Lobi an award, a special recognition from the IPPF, the International Planned parenthood Federation, Western hemisphere region.

Each wagon had its own objective and methodology and by the time the train had gone through the selected area, the women in that area were systematically approached by the screening program. This however did not mean that all women had participated in the free of charge preventive screening program for cervical cancer. This created concerns because too many assumed high risk women; women from areas with low screening percentages, did not participate. Just repeating the screening campaign would not lead to participation of the non-respondents, but the assumed behavioral obstacles needed to be analyzed. Behavior and screening result data collected in the first year of this wagon train approach have been gathered. Specifically, data on risk avoidance and risk increasing behaviors with regard to cervix cancer as well as data on the relation between fear for screening and non-participation will be presented in this thesis. In addition, field-experimental data on fear for cervix cancer screening at the Lobi clinic will be presented.

Introduction

Proxies for HPV exposure

Cancer is generally defined as the new growth of tissue resulting from the continuous generation of abnormal cells that have the ability to invade and destroy other tissues. Such malignant growth may arise from any type of cell and in any tissue of the body. The initiation of many malignancies is not yet fully identified. This is also true for gynecological cancers, including cervical cancer. Viral infections associated with increased sexual traffic by both men and women play a critical part in the development of cervical cancer. HPV, the human papilloma virus, has been identified as the virus that causes 90% of cervical cancer cases in developing countries (Parkin et al., 2005; Pisani et al., 1999). Latin America and the Caribbean have the highest incidences of cervical cancer (McIntosh et al., 2001; Parkin et al.,2005; Pisani et al. 1999). Given the fact that cervical cancer develops slowly, the sooner this process starts, the greater the chance that a woman will develop cervical cancer later in life. This means that the sooner a woman is exposed to the human papilloma virus, the greater the chance she will develop cervical cancer later in life. Cervical cancer is the most common cause of death among middle-aged women in many developing countries, where more than two thirds of the cervical cancer diagnosed is found at an advanced stage, with a poor prognosis for survival. Suriname is also considered a high-risk country for cervical carcinoma. This cancer type was responsible for more than one quarter of the average number of new cancers annually in Suriname, in women between 1980 and 2000. Cervical cancer is, however, a preventable disease and morbidity and mortality can be reduced through primary and secondary prevention strategies, targeting women's risk behaviors. Examining the culture of the women - which impacts on their risk increasing and risk avoidance behavior - is therefore very relevant. Culture can increase or decrease their risk for cervix cancer through increasing or decreasing the exposure to HPV, the virus that can cause cervix cancer, and trough screening for cancer. Finding proxies for exposure to HPV and determinants of screening behavior provides directions for effective prevention programs. In chapter 1 of this thesis, existing knowledge on the biology and epidemiology of cervical cancer and the behavioral factors related to cervical cancer will be presented. In chapter 2, the data from the Suriname study on cervical cancer and its demographic, behavioral, cultural correlates are presented. These data show the relations among these factors in Suriname and they provide a base for prevention activities in Suriname.

Fear and participation

Studies have indicated that cervical cancer was once the most common cause of death among women in the United States, but after the introduction of a screening program the cervical cancer death rate decreased significantly. This result indicates that invasive cervical cancer can be prevented when the preceding precancerous lesions are detected at an early stage, because these initial changes can be effectively treated so that women are protected from developing cervical cancer in the future and cervical cancer mortality rates consequently decline. Early detection not only improves prognosis and enables less radical treatment, it also reassures those with negative test results. Studies have also shown that because of fear, some women do not participate in preventive screening programs. It is for instance known that women who are informed and educated about the screening program for cervical cancer do not participate in screening programs and women who do participate experience fear and have to find ways to deal with that. This experienced fear is caused by the confrontation with one's own mortality and this ontological confrontation can lead to cognitive reactions and various defense mechanisms. These responses can have positive effects e.g., risk avoidance behaviors or negative effects e.g., flight-freeze or risk increasing behaviors. Women with a low level of fear of cancer know more about the disease, have greater intentions to behave preventively and a lesser estimation of their chance of getting the disease, and feel that cancer is less threatening than those with higher levels of anxiety (Gutteling et al., 1986). How fear intensity impacts on the participation of Surinamese women in a preventive screening campaign is considered in chapter 3, “Fear among Participants and Non-participants”, which compares participants and non-participants of a preventive cervical screening program on fear and other factors.

Buffering fear

Several studies have shown that fear often manifests itself in individuals at various times during cancer screening, diagnosis, treatment, or recurrence (Gram & Slenker, 1992; Lauver & Ho, 1993; MacFarlane & Sony, 1992). Waiting in a policlinic to be screened for cervical cancer is expected to evoke fear and salience of mortality, because the issue of cervical cancer is associated with death. Thoughts about cancer can be expected to increase the accessibility of death-related thoughts and according to TMT, persons will try, one way or another, to get rid of this reminder of mortality (Arndt et al., 1997). Two screening methods are used in Suriname in the preventive screening program, the VIA screening which provides an immediate test result and the Pap smear screening which test results are given to the client delayed, after a few months. Waiting to be screened for cervical cancer is expected to evoke fear and salience of mortality in both screening methods. A central expectation, however, is that mortality salience and

fear in the waiting room are stronger when women know that they will receive the screening test result immediately after the examination (VIA method) compared to when they know that they will receive the test result after weeks (Pap method). According to TMT, thoughts of one's mortality lead to existential anxiety that people are motivated to avert by different means. TMT distinguishes between two primary defense mechanisms to ward off awareness of mortality: cultural worldview validation and self-esteem enhancement. In chapter 4, "Fear Management and Type of Cervical Screening", an experimental hypothesis testing study is presented, comparing the use of defense mechanisms evoked by mortality salience among women waiting to be screened using the Pap smear methodology and the VIA methodology.

Chapter 1

The problem of Cervical cancer

The problem of Cervical Cancer

Health professionals generally define cancer as the new growth of tissue resulting from the continuous generation of abnormal cells that have the ability to invade and destroy other tissues. Such malignant growth may arise from any type of cell and in any tissue of the body.

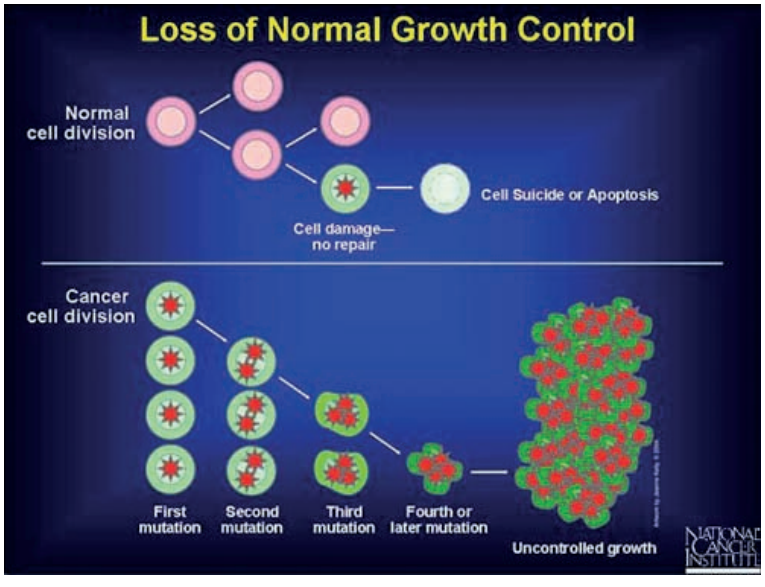

Figure 1.1 Image from National Cancer Institute, U.S. National Institute of Health, Understanding cancer series: cancer.

Thus far, researchers have not yet fully identified the factors underlying the initiation of many malignancies. The same holds true for gynecological cancers, including cervical cancer. Nevertheless, researchers have shown that viral infections associated with increased sexual traffic by both men and women play a critical part in this process. Certain socio-economic factors, cigarette smoking and certain dietary habits likely have an important influence on cervical cancer incidence as well (Peters, 2001). Thus, achieving significant reductions in cervical carcinoma incidence and mortality rates requires not only screening for transformed cells, but also providing adequate information and education about preventive behaviors (Pisani, et al., 1999).

Studies have indicated that cervical cancer was once the most common cause of death among women in the United States, but after the introduction of a screening program the cervical cancer death rate decreased (Hicks & Piver, 1991). The increased use of the Papanicolao (Pap) test, which enables the detection of pre-invasive cancer, is probably one of the major reasons for the subsequent 74% decline in cervical cancer deaths in that country (Landis et al., 1999). Countries that have properly planned and implemented national cervical cancer screening programs have achieved significant reductions in the incidence of, and mortality from, cervical cancer (PAHO, 1996a; Sigurdsson, 1993). Quite substantial declines in cervical cancer incidence and mortality have occurred, most clearly observed in Western countries, where well-developed screening programs were implemented (Parkin et al., 2002). For instance, before the introduction of screening programs in the 1960s and 1970s, the incidence rates in most of Europe, North America, and Australia/New Zealand were similar to developing countries today (Gustafsson, 1997). Yet this malignancy remains the second most prevalent tumor in women throughout the world mainly due to its relatively high incidence in developing countries, with typical rates of 30 or more per 100,000 women per year, versus 10 or less per 100,000 women per year in developed countries (Ferlay et al., 2004).
Cervical cancer is the second most common cancer among women worldwide, accounting for 510,000 new cases per year and more than 288,000 deaths worldwide. More than 80% of cervical cancer occurs in developing countries (WHO, 2004). In addition, it is the most common cause of death among middle-aged women in many developing countries, where more than two thirds of the cervical cancer diagnosed is found at an advanced stage, with a poor prognosis for survival (McIntosh et al., 2001; Blumenthal et al., 2005). Studies have also disclosed that 90% of cervical cancer cases in developing countries can be directly attributed to human papilloma virus (HPV) infection (Parkin et al., 2005; Pisani et al., 1999).

HPV and cervical cancer

Human papilloma viruses (HPVs) are a group of more than 100 types of viruses that may cause benign, non-cancerous warts or papillomas (Bosch et al., 1995). The lifetime risk of HPV infection is 70 to 80% (Koutsky, 1997). HPVs can be low-risk, non-oncogenic or cancer-associated, oncogenic. The low-risk subtypes rarely give rise to cancer, although they can induce the growth of abnormal cells in the cervix. On the other hand, infection with one of the more than 30 oncogenic HPV subtypes (for example, HPV 16, HPV 18, HPV 31, and HPV 45) may increase the risk that relatively mild cellular abnormalities progress to malignancy (Wallin et al., 1999).
Several pieces of evidence have confirmed that infection with one or more of these high-risk HPVs plays a central etiological role in the development of cervical cancer. First, the examination of 1,000 cervical cancer specimens collected in 22 countries revealed the presence of HPV-DNA sequences in 50% of the specimens and in 93%

of the tumors (Bosch et al., 1992; Bosch et al., 1995; Eluf-Neto et al.,1994). In addition, the presence of HPV-DNA in otherwise normal smears was associated with an increased risk for cervical cancer, and the persistence of HPV infection related to the development of cancer (Wallin et al., 1999). Based on these and various other observations (for example, Sonnex et al., 1999), the worldwide HPV prevalence in cervical carcinoma was estimated at 99.7%, confirming the significance of high-risk HPV in this malignancy (Walboomers et al., 2000).

HPV and the development of cervical cancer

HPV is a sexually transmitted agent that infects the cells of the cervix and slowly causes them to change, which can eventually result in the development of cancer. HPV infection can induce flat, invisible warts on the epithelium of the cervix or vagina or remain asymptomatic. Warts caused by high-risk HPV subtypes can develop into cancer. This process starts with mild cervical dysplasia, a precancerous condition that progresses slowly and regresses in about 60% of cases (Bosch et al., 1995). However, it can advance to severe dysplasia or carcinoma *in situ* (CIS), a treatable precursor of invasive disease, and eventually to overt, invasive carcinoma (Bosch et al., 1995).
However, it may take as long as 20 years post-HPV infection before warts emerge or cells start changing, and it may take up to 30 years for cervical cancer to develop (Franco et al., 2001). Not surprisingly, the risk for severe dysplasia peaks around the age of 35, but for cervical cancer it peaks around 50 (Ponten et al., 1995). This course may be different in developing countries. For instance, in Africa, dysplasia may progress more rapidly to an invasive disease, and patients generally present at a younger age and with a more advanced (stage 3) disease (Rogo et al., 1990).

HPV and behavioral risk factors

HPV is a sexually transmitted agent that can infect both the female and the male genital organs and anal areas. It can be present on all genital tissues and can be passed on easily during all kinds of sexual contact without the immediate development of apparent, visible symptoms. Although male and female condoms offer some protection, skin-to-skin contact still allows for HPV infection (Koutsky & Kiviat, 1999). Thus, the use of a condom is no guarantee that HPV will not be transmitted through sexual contact. Moreover, HPV transmission can also occur through finger-genital contact (Sonnex et al., 1999). Not surprisingly, the risk factors for cervical cancer are the same as those associated with HPV transmission and infection, including multiple sexual partners and early initiation of sexuality (Armijor, 1986; Muñoz et al., 1992), never being married, divorced or separated status, more than three lifetime sexual partners, more than one partner during the

previous year, cigarette smoking, and the use of oral contraceptives (Sellors et al., 2000).

The exact mechanism linking cigarette smoking and cervical cancer has not been established. However, smoking exposes the body to many cancer-causing chemicals which are absorbed by the lungs and carried in the bloodstream throughout the body. Chemicals from cigarettes and cigarette smoke have been found in the cervical tissue of women who smoke. These chemicals may damage the DNA of cervix cells and weaken their ability to fight off infections, making the person more vulnerable to abnormal development (Antony et al., 2006).

As the HPV can be transmitted through sex, men are also involved in women's risk for cervix cancer. The presence of HPV DNA in the husbands' penis conveyed a fivefold risk of cervical cancer to their wives. The risk of cervical cancer was strongly related to the husband's number of extramarital partners, especially to the number of prostitutes who are an important reservoir of high-risk HPVs (Bosch, 1996).

Given the pivotal role of HPV in the development of cervical carcinoma, it is obvious that this process can be prevented by decreasing the risk of exposure to the virus as well as through regular testing for HPV infection and the presence of precancerous lesions.

Use of oral contraceptives

The use of oral contraceptives is often mentioned as a predisposing factor for cervical cancer (WHO, 1992, 2002). Studies, indeed, have shown that oral contraceptive use may increase the risk for cervical cancer. Support for this assumption comes from the finding that women who used oral contraceptives were more likely to test positive for HPV-DNA (Bosch et al., 1992; Hildesheim et al., 1990). In addition, research shows that compared to HPV-infected women who did not use oral contraceptives, those who used oral contraceptives for 5 to 9 years had approximately three times the risk of invasive cancer, and those who used them for 10 years or longer had approximately four times the risk (Moreno et al., 2002). The understanding of the link between the use of hormonal contraception and the development of cervical cancer is still limited. One explanation is that exogenous female hormones such as those used in combined oral contraceptives act as cofactors. Another explanation is that the use of hormonal contraceptives could result in women indulging in more unprotected sexual activity putting them at more risk of HPV. Furthermore, it was also suggested that oral contraceptives may enhance HPV detection (Hildesheim et al., 1990). Oral contraceptive users are regular users of medical services and more easily screened preventively or because of complaints.

Use of condoms

Current data about the relationship between condom use and cervical cancer do not point clearly in one direction. According to one study from Thailand, the regular use of condoms by clients of sex workers would reduce the number of invasive cervical cancer cases by at least 25% (Hildesheim et al., 1990). However, in another study of married men visiting prostitutes, the use of condoms strongly correlated to the rise of cervical cancer cases in that country (Thomas et al., 1996). The different study outcomes can be tentatively explained by reasoning that condoms do not provide 100% protection against HPV transmission as the virus can be passed on via infected body parts not covered by the condom. Condoms need to be used each and every time the person has intercourse. If the research does take this factor into account, this behavior factor may lead to different results and thus interpretations of the effectiveness of condoms in protecting against HPV.

HPV and HIV

HPV infections were more numerous in women infected with the Human immune-deficiency virus (HIV) than in HIV-negative women (Abercrombie & Korn, 1998; Luque et al., 1999). Furthermore, in HIV infected women the HPV infection was more virulent and progressed more rapidly to neoplasia (Abercrombie & Korn, 1998; Luque et al., 1999). In addition, a retrospective analysis of 28 HIV-infected and 132 HIV-negative cervical cancer patients showed the presence of 5 times more cervical intraepithelial neoplasia or unevaluated abnormal smears in the former group when compared to the latter (Fruchter, 1998). Most of the HIV-infected women with cervical cancer probably contracted the HIV infection after the initiation of the neoplastic process; thus, the HPV infection (as well as the HIV infection) was likely a result of risk behavior rather than from HIV-induced immunodeficiency (Fruchter et al., 1998).

HPV and cervical cancer screening

Since HPV is one of the main risk factors for cervical cancer, the question arises as to what extent preventive measures such as a Pap smear and reducing of behavioral risk factors influence the incidence of cervical cancer. Would it not be more pragmatic to just test for HPV, using an HPV test which enables the detection of an important underlying cause of cervical cancer—namely, infection with one or more oncogenic HPVs? However, HPV-negative women can also develop cervical cancer, which implies that the mere presence of (oncogenic) HPVs is not the only indicator of a risk for cervical cancer. Since such precancerous lesions occur in the absence or presence of HPV infection (Herrero, 1996), more predictive factors for cervical cancer risk need to be screened for than just the presence of HPV alone. Therefore, regular Pap tests possibly in addition to testing for HPV, lead to early diagnosis which can prevent cervical cancer because, when the disease is

diagnosed early and treated effectively, women can expect complete recovery. Thus, whether caused by HPV(s) or not, secondary prevention or regular Pap smear screening of sexually active women will increase the early detection of precancerous lesions, thereby reducing cervical cancer incidence and mortality rates (Wallin et al., 1999).

HPV and vaccination

There are more than 100 types of HPV but only a limited number of types are capable of producing cervical cancer. Two cervical cancer vaccines are licensed, Gardasil, made by Merck, and Cervarix, made by GSK. Gardasil works against HPV types 16, 18, 6 and 11. These strains of virus cause most of the cases of cervical cancer. Cervarix protects against HPV types 16 and 18. Thus, Gardasil is quadrivalent, protecting against four - the main causes of cervical cancer and genital warts. Cervarix is a bivalent vaccine, protecting against two strains of the human papillomavirus which cause cervical cancer.

Before approval, the HPV vaccine was tested in more than 21,000 girls and women in many countries around the world. There were no deaths due to the vaccine, and no serious side effects reported during those trials. The most common side effect was brief soreness at the injection site. By late 2008, more than 20 million doses of the vaccine had been distributed in the United States. The Centers for Disease Control and Prevention (CDC) and the FDA monitor the safety of all vaccines used in the United States. As of August 31, 2008, the Vaccine Adverse Event Reporting System (VAERS), a national reporting system that monitors reports of potential side effects following vaccination, had received a total of 10,326 reports of potential side effects following HPV vaccination. Less than 6% of those reports were serious side effects, about half of the average for vaccines overall. Most reports of problems after the HPV vaccine have been minor. Common events include pain at the injection site, headache, nausea, and fever (CDC, 2008).

The HPV vaccine is no magic bullet. It has the potential to substantially reduce the prevalence of cervical cancer, but not to eradicate it. The vaccine is most effective if given before sexual activity starts. The vaccine is not effective in sexually active girls once they are infected and even if they have been vaccinated they must be screened because the vaccination does not protect against all strains of HPV. Thirty per cent of cases are caused by other types of HPV which are not included in the vaccine. The vaccine has stirred the discussion to which extend immunizing teenagers could encourage sexual activity. It sends the message: we expect you to be sexually active. It could cause youngsters to feel like sexual behaviors are safer if they are vaccinated and may lead to more sexual behavior because they feel safe. Health professionals and health-care policymakers face tough decisions: Who should get the vaccine and at what age? How to include HPV vaccination in a comprehensive cervical cancer control program? Which sustainable funding mechanisms should be in place? Such decisions may be easier for developed

countries which have data on HPV and cervical cancer prevalence, existing vaccination programs and ample clinical trial data on the HPV vaccine itself, while developing countries may not have a complete set of epidemiological data or a mechanism to deliver the vaccine (WHO, 2007). An open discussion is still: Why not vaccinate boys who carry the virus to the girls? Vaccinating boys may help to maximize to the public the impact this vaccine could have and the vaccine seems to be effective in boys. (Medical College Of Georgia 2004)
Studies in Mexico have shown that between 63-84% of parents are willing to have their daughters vaccinated against HPV (Lazcano-Ponte et al., 2001, Moraros et al., 2006, Ogilvie et al., 2007, Brabin et al., 2006). A study in the Netherlands showed that of the 1.367 women who were called to be screened for cervical cancer, 76% were in favor of vaccinating their daughters and 81% of women with abnormal results. Young women were more positive about the vaccination. Concerns were mentioned about the long term side effects (Korfage et al., 2008). A study among females, users of services at the polyclinic of Stichting Lobi, revealed that 94,1% of the respondents are willing to have their daughters vaccinated (Poels, 2009).

Epidemiology

With more than 500,000 new cases per year, cervical cancer is among the most common types of cancer in women in the world, ranking second only to breast cancer (WHO, 2004). This malignancy is the fourth most common cause of cancer deaths, claiming nearly 300,000 patients annually (WHO, 2004). In developing countries, cervical cancer is the most common malignancy and the leading cause of death due to cancer in women (McIntosh et al., 2001; Parkin et al., 1999; Pisani et al., 2005). As mentioned earlier, more than 80% of all cervical cancer fatalities in the world occur in developing countries—roughly six times the rate in developed countries (McIntosh et al., 2001; Parkin et al., 1999; Pisani et al., 2005).
Such differences between developed and developing countries are probably, for the most part, attributable to the availability of and access to regular cervical cancer screening programs. In the western world, an estimated 40 to 50% of women have received a cervical cancer examination, versus only 5% in developing countries (Solomon, Breen, & McNeel, 2007). Consequently, patients in developing countries are most often seen in later stages of the disease than those in developed countries. In The Netherlands, for example, 6% of women diagnosed with cervical cancer are in disease stage 3 or 4, compared to 30% in Suriname (Oosterhof, 2001). Notably, Scandinavian countries—with their outstanding cervical cancer screening facilities—are among the regions in the world with the lowest cervical cancer mortality rates (Sigurdsson, 1993).

Latin America and the Caribbean

Latin America and the Caribbean are probably among the areas in the world with the highest incidences of cervical cancer (McIntosh et al., 2001; Parkin et al., 2005; Pisani et al. 1999). In these regions, the number of new cases, the total number of cervical cancer patients as well as the number of women who die from this disease amount to 7.7, 6.9, and 7.1%, respectively. This implies that the risk of developing cervical cancer in these regions is approximately six times higher than that in Western Europe (Parkin et al., 1999; Path, 2000). The average cervical cancer mortality rate in Latin America and the Caribbean is roughly 5 deaths per 100,000 women (Parkin et al., 2005). Thus, cervical cancer equals or slightly surpasses breast cancer as the main cause of death from cancer in these parts of the world (Parkin et al., 2005; Robles, 1996).

Suriname

Suriname can be categorized as a high-risk country for cervical cancer. This malignancy was responsible for more than one quarter of the average yearly number of new cancers in women between 1980 and 2000 (Mans, 2003). The crude incidence from 1980 to 2000 was 43 ± 11 new cases per year, or 22 ± 5 per 100,000 women per year (Mans, 2003). These values are well in line with the mean annual rate of 53 ± 8 recently reported for the period from 1991 to 2004 by the Pathologic Anatomy Laboratory of the Academic Hospital of Suriname (Vrede 2001), as well as with the mean yearly crude and age-standardized rates of 20.5 and 26.7, respectively, per 100,000 women reported for the period of 1989 to 1994 (Krul et al., 1996). Apparently, the rate of incidence of cervical cancer in Suriname is closer to that of the 30 or more per 100,000 found in Latin America and the Caribbean than to that of the 10 or less per 100,000 in most developed countries (Parkin et al., 1999; Parkin et al., 2005). Consequently, Suriname can be characterized as a high-risk country for cervical carcinoma (Mans, 2003).

Etiology

Apart from a strong involvement of oncogenic HPV(s) in the development of cervical carcinoma, the precise etiology of this malignancy is unknown. After infection with HPV, the development to invasive carcinoma may take 10 to 20 years (Holowaty, 1999). However, not all HPV infections lead to cervical cancer because spontaneous resolution of the infection occurs (Elfgren et al. 2000). Behavioral risk factors which play a role in carcinogenesis include early age of first sexual intercourse, multiplicity of sexual partners (on the part of both the woman and her partner), high parity, cigarette smoking, and the use of oral contraceptives. These risk factors are probably also associated with the pre-invasive stages of cervical

cancer—i.e., carcinoma *in situ*, moderate dysplasia, and severe dysplasia (WHO, 1992, 2002). Figure 1.2 illustrates the probable role of remote behavioral risk factors for persistent infection and of coexisting factors that mediate lesion progression (Franco et al., 2001).

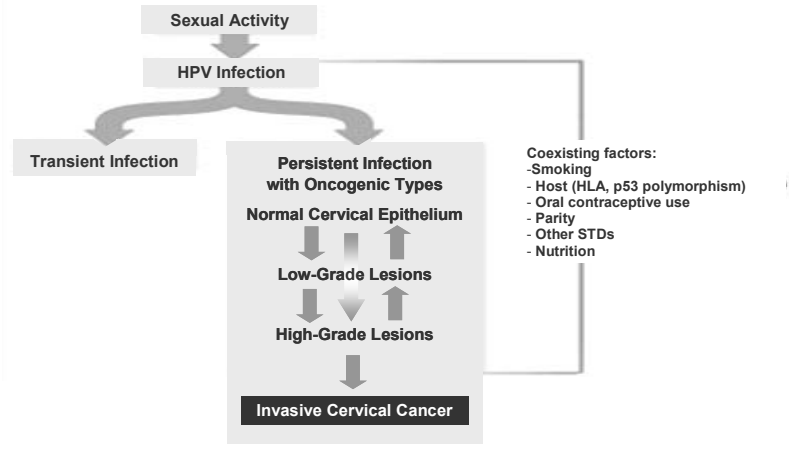

Figure 1.2 Etiological model of HPV infection and cervical cancer; Lianne Friesen, Franco et al., (2001).

Biology of cervical cancer

Women are generally infected with HPV in their teens, 20s, or 30s, and cervical cancer may develop after 20 years or more (Walboomers et al., 2000). This process has been hypothesized to take place according to the following concept (see Figure 1.1).

1. In the first stage, HPV infects the normal squamous cell epithelium. This infection is fairly common in women of reproductive age and results in a minority of women at worst in regressing, low-grade lesions. In most cases the infection remains stable or becomes undetectable without inducing any cellular damage.
2. The low-grade cervical dysplasia is usually temporary and disappears over time. In a small group of women, it progresses to high-grade dysplasia.
3. The high-grade dysplasia is a precursor of cervical cancer and occurs relatively rarely when compared to low-grade dysplasia. Of note, very rarely, high-grade dysplasia develops directly from low-grade dysplasia or from HPV infection.
4. Women with high-grade dysplasia are at risk of developing invasive cancer.

Prevention

Invasive cervical cancer can be prevented when the preceding precancerous lesions are detected at an early stage.[1] These initial changes can be effectively treated so that women are protected from developing cervical cancer in the future and cervical cancer mortality rates consequently decline. Early detection not only improves prognosis and enables less radical treatment, it also reassures those with negative test results.

The primary prevention of cervical cancer can largely be achieved through prevention and control of genital HPV infection. This can be achieved through health promotion strategies that focus on changes in sexual behavior, targeting all STDs of public health significance that can be effective in preventing genital HPV infection (Meheus, 1997).

Vaccinations can be given to girls as young as nine years, although the HPV vaccine is routinely recommended for girls 11 to 12 years of age. This is also considered a routine vaccination. It is important for girls to receive the HPV vaccine before their first sexual contact as they should not have been exposed to HPV. This allows the immune system to be activated before they encounter HPV and allows for the highest antibody levels, thereby providing greater protection. Gardasil will actually prevent 2 types of HPV that cause about 70% of the cervical cancers (CDC, 2008). However, if a girl or woman is already infected with a type of HPV, the vaccine will not prevent the disease from that type. Ideally, this is a vaccine for virgins. The vaccine is also recommended for girls and women who are 13 to 26 years of age who did not receive it when they were younger—the so-called catch-up vaccination, however, for the vaccination to be successful, the woman should not have been exposed to HPV.

Diagnosis

Cervical cancer or the risk for cervical cancer can be diagnosed using a Pap smear. A Pap smear is a cytology test conducted by collecting cells from the endo- and ectocervix using a wooden spatula and/or cytobrush/cervix brush, smearing them on a glass slide for analysis, and fixing them to enable the analysis by a cyto-technician. The results of the Pap smear examinations are classified according to the severity of the cervical intraepithelial neoplasia (CIN); with increasing grades associated with progressive loss of epithelial maturation: CIN I: mild dysplasia; CIN II: moderate dysplasia; and CIN III: severe dysplasia; CIS: carcinoma *in situ*. As mentioned earlier, not all CINs give rise to cancer, and CINs are—as a rule—fairly

[1] Our increased knowledge of processes at cell and DNA level should not distract us from the fact that the cause and development of cervical cancer also depends on certain risk factors at the level of the individual lifestyle and society (Leiden University, 2002).

frequent, occurring in 5.5% of women between the ages of 20 and 29 and in 2.6% of those between the ages of 50 and 59. It is now well accepted that most dysplasias or low-grade CINs regress spontaneously without developing into cancer. The term *dysplasia* signifies that morphological changes have occurred in the epithelial cells of the cervix. However, the CIN grouping is for statistical reasons only and provides no medical qualification of the severity and the anticipated progress of the morphological changes of the cells. A Pap smear provides only an indication; it is not a final diagnosis, and a follow-up examination is necessary to identify the women who need further examination and treatment.
Besides the Pap smear, another screening method is available; the VIA method. The VIA methodology is a technique known as visual inspection screening. It involves the application of acetic acid (4% vinegar) on the cervix to allow for a naked eye inspection for typical acetowhite coloration of precancerous lesions. Pap smear has a sensitivity range of 30 to 87% for dysplasia and good specificity (American College of Gynecologists and Obstetricians 2005; Walter, 2004).
Grünberg found that the VIA performed in Suriname, to be almost two times better in detecting premalignant lesions than the Papsmear, making the VIA much more successful in detecting premalignant lesions (Grünberg, 2008). The higher sensitivity of the VIA methodology compared to the Pap smear methodology was established in studies done by Cronjé and Denny (Cronjé et al., 2003; Denny et al., 2002). Comparing VIA results with histology results, Grünberg found a positive predictive value of a positive VIA to be 89.2%. Comparing the histology results and the positive VIA patients with their corresponding Pap smear results, the latter screening methodology missed two women with carcinoma, indicated a CIN 1 diagnoses for a woman with carcinoma and an atypical diagnoses for a woman with carcinoma (Grünberg, 2008).

Treatment

Decisions about treatment are based on the stage of the tumor at the time of diagnosis. For example, when the tumor is small and still confined to the cervix (stage 1), the first option is local treatment, such as surgery. This could involve cryosurgery, in which the area of abnormal cells is destroyed by freezing the outer layer of cervical tissue; cauterization, in which the abnormal cells are killed by burning; or laser surgery, in which the area of abnormal tissue is eliminated by an intense laser beam. These procedures can be performed in a polyclinic setting and do not require the use of anesthetics (Blumenthal et al., 2001).
In more advanced stages (for example, stage II), more intensive therapy is required. There are four standard methods of treating cancer: surgery, chemotherapy, radiation therapy, immunotherapy and biologic therapy.

Surgery can be used to prevent, treat, stage (determine how advanced the cancer is), and diagnose cancer. In relation to cancer treatment, surgery is done to remove tumors or as much of the cancerous tissue as possible. It is often performed in conjunction with chemotherapy or radiation therapy. Chemotherapy is the use of drugs to eliminate cancer cells. It affects the entire body, not just a specific part. It works by targeting rapidly multiplying cancer cells. Radiation therapy uses certain types of energy to shrink tumors or eliminate cancer cells. It works by damaging a cancer cell's DNA, making it unable to multiply. Biologic therapy is a term for drugs that target characteristics of cancerous tumors. Some types of targeted therapies work by blocking the biological processes of tumors that allow tumors to thrive and grow. Other types of therapies cut off the blood supply to the tumor, causing it to basically starve and die because of a lack of blood (Fayed, 2008).
When it comes to the financial costs of treatment, treatment of the pre-malignant lesions is far cheaper than treatment of invasive cancer and palliative care. According to the World Bank, cervical cancer screening of women every five years with standard follow-up for identified cases would cost about US$100 per disability-adjusted life year (DALY), compared to a DALY of about US$2,600 for the treatment of invasive cancer and palliative care (Jamison et al., 1993).

Prognosis

As previously mentioned, early detection of precancerous cervical lesions reduces the chance of the development of overt, invasive carcinoma as women can receive adequate treatment. Screening should affect mortality from cervical cancer for at least 15 years, but some effect might be seen within three years. Screening leads to the detection and treatment of both occult invasive cancers in previously unscreened women and precancerous lesions (Wai-Ching Leung, 1999). Surgery or radiotherapy for stage IB and IIA tumors has resulted in 5-year survival rates of 75% to 90% (Lee, 2005).

Psychological aspects

Background

The relationship between behavior and cervical cancer has never been studied before in Suriname, even though Suriname is a high-incidence country for cervical cancer (Mans, 2003). Undergoing a Pap smear examination is a conscious, goal-oriented, voluntary action that involves complex emotional and psychological processes. It calls for awareness of actions to avoid undesired consequences that, can be prevented with proper risk avoidance behavior which might prevent cervical

cancer. Before submitting oneself to a test to detect cervical cancer, one should be convinced of its importance, be encouraged to participate, and build up the intention and motivation to overcome emotional and cognitive obstacles. These complex emotional and psychological processes must not be neglected in the implementation of screening programs, motivational campaigns, or qualitative psychological studies.

Obstacles for screening

When nationwide screening programs are held, some women never want to participate (see chapter 3). One should duly consider the numerous normative and psychic costs related to the emotional and psychological obstacles of having an examination conducted as well as the possible impact of a positive result of a cervical cancer examination. These obstacles arise from what the person has learned or preconceived notions formed based on communication and interaction with others. Such obstacles can arise from the person's perceptions, fears, or anticipation of disharmony brought into the family, the insecurity regarding the family status, and the discord that the issue might cause in the communication among spouses, family members, and others as well as the unconventional communication required (Cook & Mineka, 1991).

Fear as an obstacle

Fear of cancer is a relevant psychological factor in cancer screening. Women with a low level of fear of cancer know more about the disease, have greater intentions to behave preventively and a lesser estimation of their chance of getting the disease, and feel that cancer is less threatening than those with higher levels of anxiety (Gutteling et al., 1986).

Murray and McMillan (1993) measured the extent of fear among respondents in Northern Ireland about their cancer-screening behavior, health beliefs about cancer, health locus of control, and emotional control. The findings indicated that the most important predictor of attendance for cervical smears was lack of fear of the consequences of the investigation. In other words, fear of learning that one has cancer is a dominant barrier to participating in cervical cancer screening. This notion is in contrast to the theory of Rothman in which fear is seen as a motivator for positive health seeking behavior, especially for detections behaviors (Rothman et al., 1997). It is however in line with the so-called U- shaped response of self-protective behaviors, proposed by Janis. He proposes in his theory, that the behavioral response to fear would depend on its intensity, that low levels of fear would lead to inaction, moderate levels would produce self-protective behavior, and high levels would result in counterproductive defensive responses (Janis, 1967). According to Rothman, this inverted U- shaped response of self-protective behaviors may be appropriate and valid only in particular circumstances (Rothman

et al., 1997). Lerman, Caputo, and Brody (1990) concluded that, when women with a high level of anxiety learn that they have a genetically lower level of risk of breast cancer than they had previously believed, they performed breast self-examinations more frequently. This is consistent with the inverted U-shape model.

Mineka (1985) points out that, although most wild monkeys actually do not suffer from snakebites, nearly all monkeys reared in the wild fear snakes by learning by observation. Even in the laboratory, monkeys can learn to fear snakes by watching videotapes of monkeys reacting fearfully to a snake, but they do not learn to fear a flower when video splicing transposes the seemingly feared stimulus—the snake—into a flower (Cook et al., 1991). Mineka's tests with monkeys suggest that fears not only reflect one's own past traumas, but also those of one's parents and friends. We may also be biologically prepared to learn some fears more quickly than others. Human beings rapidly learn to fear snakes, spiders, and cliffs, but are less predisposed to fear the more dangerous things—such as cars, electricity, and bombs (McNally, 1987). Similarly, the fear for cervical cancer may be based on social learning but also on an inborn fear of potential health threats, as cancer is still strongly associated with death and dying.

Terror management theory

In general, people perceive a strong link between cancer on the one hand and death, dying and mortality on the other hand. The terror management theory (TMT) provides an explanation for reactions people exhibit when facing their own mortality. When human beings are facing a precarious position due to the conflict between biological motives to survive and the cognitive capacity to realize that life will ultimately end (for example, when confronted with cancer), they might experience a paralyzing anxiety. Terror management theory (TMT) developed in the late 1980s provides an explanation for the paralyzing anxiety that people might experience. The theory was inspired by the psychoanalyst Freud and the theories of Ernest Becker (Becker, 1973). The basic premise of his book *The Denial of Death* is that human civilization is ultimately an elaborate, symbolic defense mechanism against the knowledge of our mortality, which in turn acts as the emotional and intellectual response to our basic survival mechanism which is our innate basic system to protect ourselves and which favors the continuation of our species.

TMT came more into focus after the September 11 bombing of the twin towers in New York, US. According to TMT, people have a primary need to eliminate or reduce existential terror in response to such horrific events as 9/11. One study (Young et al., 2005) revealed that the vast majority of participants' immediate or proximal reactions to 9/11 were shock and/or disbelief, whereas their delayed or distal reactions included performing altruistic or pro-social behavior, searching for meaning or value in life, seeking or sharing information, spending time talking to others, and making bigoted remarks about Arab Muslims. Proximal reactions were suppression of death-related thoughts or pushing the problem of death into the

distant future by denying one's vulnerability, while distal reactions entail maintaining self-esteem and faith in one's cultural worldview (Pyszczynski et al., 2003). According to TMT, when people become aware that death is inevitable, they deal with this problem by creating a system of thoughts and beliefs that provide a meaningful conception of the world; this worldview gives our lives a sense of lasting meaning—a prescription for valued behavior. Investing in this cultural worldviews thereby provides a way to buffer us from fearful preoccupation with our own vulnerability and mortality and serves to maintain our self-esteem, which is acquired by believing that one is living up to the standards of value inherent in one's cultural worldview.

Thus, the distal defense mechanism is manifested in the form of a) a cultural worldview and b) self-esteem. Although cultures vary considerably, they all have in common the same defensive psychological function: they provide meaning and value. All cultural worldviews are ultimately shared fictions as none of them are likely to be literally true and their existence is generally sustained by our consensus; everyone around us believes in it, and we are confident of the truth of our beliefs. Through a dual-component anxiety buffer consisting of a cultural worldview; beliefs about the nature of reality that provide a sense that the universe is meaningful, orderly, and self-esteem; the perception that one is living up to the standards of value within the culture - one promotes safety and security in this life and immortality thereafter.

Besides that fact that culture can serve as a buffer for fear experienced, evoked because of on a symbolic level the association of death with cervical cancer, culture also influences individuals' behaviors that are relevant for the risk of developing cervical cancer.

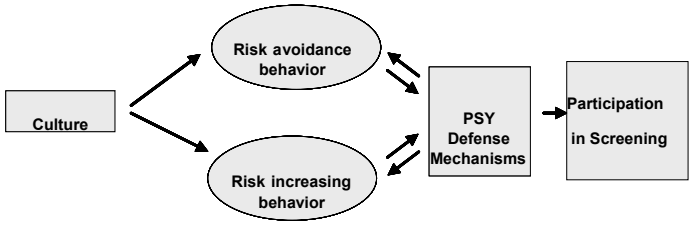

Figure 1.2 Influence of culture on risk increasing and avoidance and psychological defense mechanisms.

The theoretical model depicted in Figure 1.2 assumes that the culture of the women impacts on their behavior, their risk avoidance and risk taking behavior, and the use of psychological defense mechanisms in anticipation of instant or delayed confrontation with the result of cancer screening.

Lederach has defined culture as: "the shared knowledge and schemes created by a set of people for perceiving, interpreting, expressing, and responding to the social

realities around them" (Lederach, J.P., 1995). In this theoretical model, culture can be considered shared beliefs, customs, practices, and social behavior of a group of persons. It nurtures the behavior of the group members and distinguishing between good and bad behavior. The culture also instills in it members norms values and rules to regulate sexual behavior. The culture therefore has an important impact on the risk behavior of women with regard to getting infected with HPV. The theoretical model does not exclude nature as a factor in the behavior of women giving due account to both, nature or innate qualities and nurture or (cultural) experience, in the explanation of behavior.
Risk avoidance behaviors are the behaviors which prevent woman to get infected with HIV. These behaviors can be endorsed or disapproved in a specific culture, thus will differ depending of the culture on the woman. The culture promotes or discourages risk increasing behaviors, which are behaviors which expose a woman to a HPV infection and risk avoidance behavior which lower the chance of a woman getting infected with HPV.
In conclusion, culture is an important factor in understanding women's perceptions and behaviors with regard to the risk of cervical cancer.

Aims of the present research

The aims of this research are:

- To determine which traditional risk behaviors, as defined by the WHO and found in other studies with regard to cervical cancer, are relevant in Suriname;
- To determine the relationship between fear and participation in a preventive screening examination;
- To determine the use of defense mechanisms based on the Terror Management Theory among women waiting to be screened for cervical cancer.

To achieve these aims, this research conducted in Suriname consists of three empirical studies:

Study one: "Behavior Factors and Cervical Cancer" presents relations between risk behaviors and cervical cancer.

Study two: "Fear among Participants and Non-participants" compares participants and non-participants of a preventive cervical screening program on fear and other factors.

Study three: "Fear Management and Type of Cervical Screening" is an experimental hypothesis testing study comparing the use of defense mechanisms evoked by mortality salience among women waiting to be screened using the Pap smear methodology and the VIA methodology.

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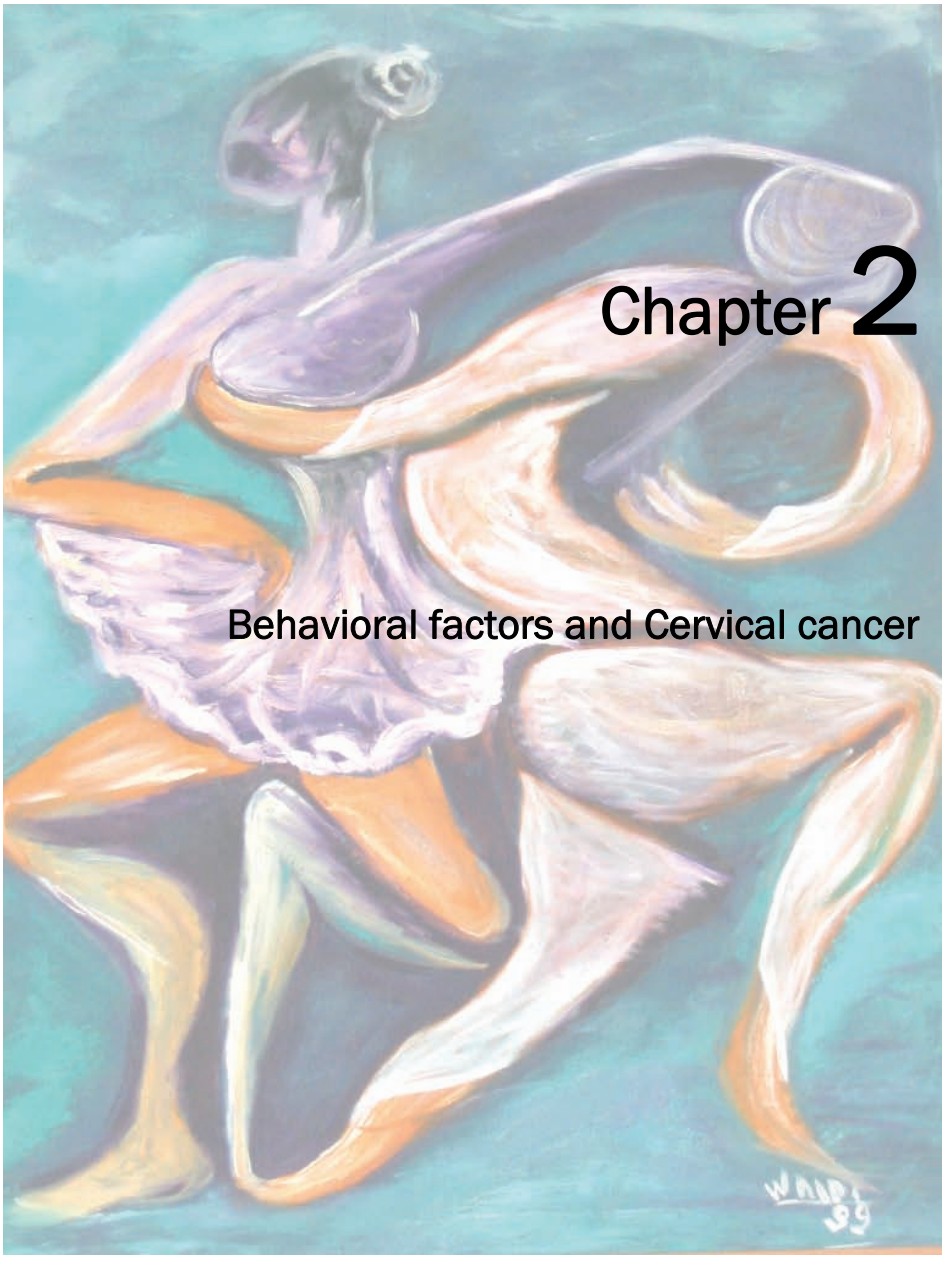

Chapter 2

Behavioral factors and Cervical cancer

Abstract

This study explored which behaviors represent high risks for developing cervical cancer and which groups in Suriname have a high risk for this malignancy. The women included in this study completed a Pap smear examination in the districts of Paramaribo or Wanica as part of the first nationwide cervical cancer screening program in 1998. After assessing behaviors through a 38-item questionnaire, the relationships among WHO-identified factors and the screening result were studied. The results suggested that starting sexual intercourse early—particularly under the age of 12—having a high parity, and getting pregnant early—particularly in those under 14—are associated with a positive Pap smear. This holds particularly true for Maroon and Creole women. Conducting regular preventive screening, postponing sexual intercourse, and keeping women in the formal educational system as long as possible may reduce the risk of cervical carcinoma in women.

Introduction

Suriname is considered a high-risk country for cervical carcinoma. This cancer type was responsible for more than one quarter of the average number of new cancers annually in women between 1980 and 2000. The highest incidence and mortality rates were in women over 50 (Mans et al., 2003). Annually, about 56 women die due to cervical cancer and the chance of women living in Suriname developing cervical carcinoma before the age of 75 is 1 in 35 (Grünberg, 2001).

The results from several studies indicate that so-called traditional behavioral risk factors are of major importance to the development of cervical carcinoma instigated by HPV (WHO, 2002). The World Health Organization has recorded such traditional high-risk behaviors, which encompass all types of behavior exposing a woman to HPV. Examples include the age of first intercourse experience, the number of sexual partners, the number of children, and the failure to use a male condom (WHO, 2002). The WHO risk factors all relate to exposure or early exposure to the virus HPV: The earlier the first intercourse experience, the greater the chance for early infection of HPV. The same is true for number of children (the more children, the higher the risk that the woman started sexual intercourse early) and the number of sexual partners (the more sexual partners, the greater the risk for exposure to HPV). The use of condoms to a certain extend can prevent exposure to HPV, if used consistently at each and every intercourse.

To reduce the incidence of cervical cancer, it is necessary to acquire specific knowledge about behaviors that increase the risk for cervical cancer and identify the high-risk groups in Suriname. For this purpose, this study searched for the association between Pap smear results, and age, ethnicity, use of contraceptives and education, and behaviors as proxies for HPV exposure, age of sexual initiation and first pregnancy. In addition, the study addressed other relevant behaviors; earlier preventive screening behavior for cervix cancer and vaginal hygiene practices.

The theoretical model in Figure 2.1 shows the expected relationships between the culture of the women, their risk avoidance and risk increasing behaviors and their risk for cervix cancer.

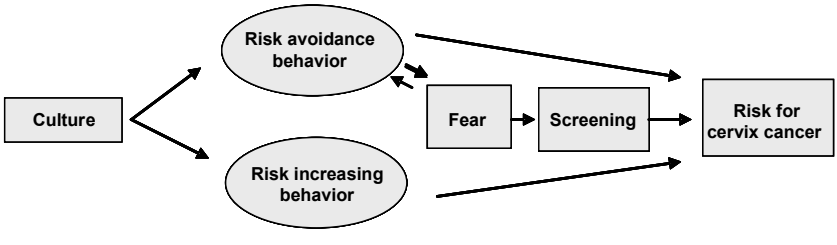

Figure 2.1 A model for behavioral determinants of cervix cancer risk.

Methods

Recruitment and participants

The study population consisted of all women who participated in the first nationwide cervical cancer screening program in Suriname. The data were obtained through a questionnaire which was filled out by the women who participated in the 1998 national cervical cancer screening program. In accordance with the protocol for its implementation, the program took place in 1998 in the Paramaribo and Wanica districts. The use of mass media and face-to-face programs and activities helped to motivate women to participate in the Pap smear screening campaign. The mass media programs consisted of TV and radio programs. Motivational activities aimed at individual women included house visits by members of a women's movement. Leaflets were left at homes and in certain areas a sound truck went round during the examination hours calling on women to visit the clinic. The women who responded to this campaign subsequently underwent an examination at the Lobi polyclinic or one of the polyclinics of the Regional Health Services of the Ministry of Health located in these districts. Women from other districts who completed a Pap smear examination in one of these centers were also included in the study. Lobi staff trained the interviewers, who received support in the field when necessary. The Lobi clinic staff also served as interviewers.

Procedure

To determine whether morphological changes had occurred in the epithelial cells of the cervix among the participating women, cells were collected using the Pap smear methodology. The Pap smear results were expressed as CINS (as described in the previous chapter), and subsequently grouped as follows: group 1—normal, group 2—atypical cells, CIN I, CIN II, CIN III, and group 3—abnormal results, consisting of CIS.

Assessment

The risk factors presumably associated with a positive Pap smear result were determined by requesting the responding women to fill out a 38-item questionnaire (see Appendix) covering demographic variables (including place of residence, ethnic background, age, and formal education of the respondents), reproductive behavior (including age at the time of sexual initiation, type of relationship with partner, age of first pregnancy, and contraceptive use), and vaginal hygiene.

Data processing and statistical analysis

The collected data were entered into an electronic database at Lobi and checked for logical errors. Risk behaviors were matched to the Pap smear results, by

grouping the women according to risk behavior and matching it with their Pap smear results. To this end, within each CIN group, the numbers of women displaying a certain type of behavior were established. Possible associations between risk behaviors and CIN results were tested using the Chi-square, Kendall Tau, and/or Spearman rank tests and a significance level (α) of 0.05.

Results

Demographic characteristics of participants

Table 2.1 lists the relevant demographic characteristics of the women who participated in this preventive cervical cancer screening program. A total of 4898 women participated in the study. Discrepancies between the total number of participants and the sums of the different sub-strata were attributable to incompletely filled out questionnaires and poor quality in approximately 2% of the Pap smears (Eddy, 1990). More than three quarters of the participants were Hindustani, Creole, or Javanese; approximately 10% were either Maroon or mixed, and the remaining 5% consisted of Chinese, Amerindians, Caucasians, or others. This distribution was in close agreement with the ethnic composition of the Surinamese population according to the 1980 census (ABS, 1980), validating that the study group indeed represented the Suriname population.

Almost 90% of the participants were between 20 and 49 years of age, and almost 40% of this group (37.9%) was 30 to 39 years old. The average age of the participants was 35.4 years (i.e., in the age range recommended for cervical cancer screening of women in developing countries; Meijer et al., 2000). About half of the women had had secondary education or higher; the other half had had only primary education or less.

The vast majority (almost 90%) was married, living together, living apart, or had a steady sexual partner; only approximately 10% had no steady partner. The majority of the women (79.5%) had at least one child. The average number of children per respondent was 2.22, most of the women having between 1 and 4 children. Approximately one third of the respondents were non-Catholic Christians, while a quarter were Catholic and one-fifth Hindu.

Table 2.1 Relevant Demographic Characteristics of the Participants Preventive Screening Program.

	Number	%
Total number of participants	4,898	100.0
Distribution by ethnic origin		
Hindustani	1,317	26.9
Creole	1,508	30.8
Javanese	818	16.7
Maroon	421	8.6
Chinese	108	2.2
Amerindian	103	2.1
Caucasian	29	0.6
Mixed	584	11.9
Other	10	0.2
Distribution by age		
0-19 years	103	2.2
20-29 years	1,450	29.6
30-39 years	1,858	37.9
40-49 years	981	20.0
50+ years	506	10.3
Distribution by formal education		
Primary education incomplete	747	15.3
Primary education complete	1,436	29.3
Secondary education	1,660	33.9
High school or more	1,055	21.5
Distribution by type or relationship with partner		
No steady partner	512	10.6
Married/living together	3,371	68.8
Living apart	1,007	20.6
Distribution by place of residence		
Paramaribo	3,271	66.8
Wanica	1,243	25.4
Other	384	7.8

Use of contraceptives

Sixty one percent of the 4898 respondents were not using any contraceptive method. Among the respondents who were using a contraceptive, the oral contraceptive (the pill), is the most widely used method, namely 35% and 6.9% of all respondents used a condom. The other respondents used other methods for protection against a pregnancy. If we consider the use of contraceptives in the past, 29% had never used a contraceptive and of the users, 65% had used the pill and 9.9% the condom. The remaining respondents had used other contraceptives

or methods: IUD, sterilization, Depo-Provera, natural methods. These methods are not included in the analysis.
The result show a relationship between age and the use of the pill (Table 2.2). The percentage of younger women using the pill was significantly higher than the percentage of older women (Chi-Square=442.59; df=8; p<0.001). Significant differences were found between ethnicity and the use of the pill (Chi-Square=92.96; df=4; p<0.001; (Table 2.2).

Table 2.2 Pill use by age group, and ethnicity

Age Groups, N=4898	%
15-19	51.0
20-24	49.8
25-29	42.2
30-34	37.6
35-39	30.9
40-44	24.1
45-49	11.8
50-54	4.1
55 up	1.5
Ethnic group	%
Hindu	32.6
Javanese	43.3
Creole	27.3
Maroons	21.5
Mixed	37.7

The use of the pill is higher among the Javanese, mixed and hindu women compared to creoles and maroon. The educational level of the respondents is significantly related to pill use (not presented in a table). The higher the educational level of the woman, the more likely she is to use the pill. This difference is greater when women with an incomplete primary education are compared to all other respondents. This difference is statistically significant (Chi-square=104.47; df=3; p<0.001). A similar pattern was found with regard to condom use (Table 2.3).

Table 2.3 Condom use by age group, ethnicity, and education.

Age Groups, N=4898	%
15-19	5.9
20-24	9.2
25-29	8.3
30-34	7.6
35-39	9.5
40-44	5.5
45-49	4.3
50-54	0.4
55 up	0.8
Ethnic group	**%**
Hindu	6.2
Javanese	6.8
Creole	7.3
Maroons	3.8
Mixed	8.9
Education	**%**
Primary incomplete	2.3
Primary complete	6.1
Middle school	7.4
High school or more	10.5

Looking at condom use in relation to ethnicity, the Maroon (Table 2.3) women had the lowest percentage of condom use (3.8%), followed by the Hindustanis (6.2%). The ethnic categories of Amerindians, Chinese, Whites, and Others were left out of the statistical analysis because of low representation.

Condoms can be used as contraceptive but also to prevent transmission of the HPV. While about 7% of all the respondents indicated to use condoms as contraceptive method, only 4% of the condom users indicated using condoms every time they had sex (not shown in table). Very few women outside the reproductive age range were using condoms (Table 2.3). This suggests that the culture and motivation of risk avoidance behavior of women in the reproductive age is quite different compared to the women outside of the reproductive age. Women in the reproductive age may be more concerned in risk reduction regarding an unwanted pregnancy. They may regard condom use more as a method for contraception and less as a method to prevent sexually transmittable infections (STIs). In the culture of women beyond the reproductive age, condom use may be low because it is not needed for contraception nor is it used to prevent sexually transmittable infections (STIs).

Pap smear and contraception

When comparing women who were using condoms with those who were not using condoms, a slight and not significant difference in Pap smear results was found (Table 2.4). The same was found for pill use. In addition, Pap smear result was not related to the use of the condoms in the past. Thus, this study cannot verify the earlier findings that pill use is related to a higher risk for cervix cancer and that condom use is related to lower risk for cervix cancer.

Table 2.4 Pap smear results by contraceptive use.

Contraception use	Normal (%)	Atypical (%)	Abnormal (%)
Use of orals			
No n=2180	89.2	8.9	1.9
Yes n=991	90.2	8.3	1.5
Use of condoms			
No n=2997	89.5	8.7	1.9
Yes n=334	90.0	8.9	1.1

Pap smear results and age of sexual initiation

Participants' average age of first sexual intercourse was 18.3 years, with 71% having their first sexual intercourse experience before the age of 19. Of these, 10% had sex by the age of 15, more than 50% had intercourse by the age of 18, and 75% were sexually active by the age of 20 (not presented in a table). The age of sexual initiation of the Maroon population is lower compared to the other ethnic groups (Table 2.5). The average age for Maroons is 15.9. About 25% of the Maroon women had their first intercourse by the age of 14.

Table 2.5 Age of sexual initiation by ethnic background.

Ethnic background	Number of cases	Means ± SDs
Maroon	416	16 ± 3
Amerindian	104	17 ± 2
Javanese	817	18 ± 3
Creole	1,498	18 ± 3
Mixed	584	18 ± 3
Hindustani	1,312	19 ± 3
Chinese	110	23 ± 3

The correlation between Pap smear results and sexual initiation is low but significant at the 0.01 level (Kendall's Tau test =-054; Spearman's Rho =-.064). Thus, the age of sexual initiation is negatively correlated with Pap smear results, meaning that the earlier a woman has her first intercourse, the more likely she is to have a positive Pap smear result CIN I and higher. The CIN classifies the cytological analysis, with CIN I. mild dysplasia, CIN II moderate dysplasia, CIN III severe dysplasia and CIN IV invasive. Women who become sexually active at a younger

age are more likely to have atypical cells, including abnormal CIN results[1] (Table 2.6).

Examining the abnormal results more closely, two thirds of the CIN III results occurred in the age group 50 and older, and invasive carcinoma was evident in the age group 55 and older (not presented in a table).

Table 2.6 Pap smear results by sexual initiation, age group, and completion of previous exam.

Results by	% Normal	% Atypical (CIN I-IV)	% Abnormal (CIN V)
Sexual initiation			
Sex at14 yr or <	85.9	10.8	3.3
Sex at 15-19 yr	89.0	9.1	1.9
Sex at 20-24 yr	91.2	7.4	1.4
Sex at 25-29 yr	96.0	4.0	0.0
Sex at 30 yr >	100	0.0	0.0
Age Group			
15-19	89.7	8.0	2.3
20-24	88.9	8.5	2.6
25-29	90.9	8.4	0.7
30-34	89.2	8.6	2.2
35-39	89.9	8.8	1.3
40-44	88.1	10.2	1.7
45-49	89.5	9.0	1.7
50-54	91.0	6.0	3.0
55>	88.9	8.8	2.3
Previous exam			
Never	87.2	10.9	1.9
Once	89.2	8.9	1.9
More than once	91.2	7.1	1.7
Ethnicity			
Hindu	91.3	7.3	1.4
Javanese	90.0	8.8	1.2
Ceole	89.2	8.7	2.1
Marron	81.5	14.4	4.1
Mixed	91.3	7.5	1.2

Pap smear results, first pregnancy and ethnic group

We have seen that the age of sexual initiation of the Maroon population is lower compared to the other ethnic groups. The Maroon respondents also tended to have their children at an earlier age than the other ethnic groups (not presented in a table). The average age at the time of first pregnancy for all respondents is 20.75; for Maroon respondents it is 15.86. Breaking this down into percentiles, 25% of the Maroon women started having children under the age of 16, 50% under the age of

[1] No data were collected on an important behavioral risk factor—namely, how long women had been with their partner or the number of the sexual partners of the respondents—because earlier studies in Suriname showed that information provided by the respondents was not reliable (Ilacqua, 1998).

18, and 75% under the age of 20—meaning that 75% of the Maroon women started having children when they themselves were adolescents.
Significant differences emerged when analyzing the Pap smear results according to ethnicity (Chi-Square=34.72; p=<0.001; not presented in a table). Maroon women more often had positive results, followed by the Creole group. With regard to the number of children and Pap smear results, the data from this study indicate that the greater the number of children, the greater the chances of a higher CIN result. The correlation was low positive (Kendall's Tau=0.043; Spearman's Rho=0.049), significant at the 0.01 level.

Table 2.7 Age at time of first pregnancy by level of education.

Education N= 4069	Mean	N	Std deviation	Median
Incomp. primary	18.98	678	3.95	18.00
Compl. primary	19.34	1284	3.28	19.00
Middle school	21.38	1353	3.70	21.00
High school >	23.64	754	4.25	23.00
Total	20.75	4069	4.09	20.00

Comparing the age at first pregnancy and education (Table 2.7), the following picture emerges: 75% of pregnancies among women with incomplete education occurred when they were age 20 or younger. The respondents with high school or a higher degree accounted for 25% of the pregnancies at age 20 or younger. Ten percent of respondents with incomplete primary school education became pregnant when they were age 15 or younger, whereas less than 1% of the women with a high school or higher degree became pregnant at age 15 or younger.

Pap smear results and hygiene practices

Participants also provided information on their genital hygiene practices (not presented in a table). The majority of the women (70%) clean themselves with water, 12% with water and soap, and 7% by means of other methods. Significant differences were found in the Pap smear results of women according to type of hygienic practice (Chi-square=15.46; p<0.01). The women who clean themselves with water and soap have better Pap smear results than the other women, while the women who cleaned themselves using "other methods" had a higher number of atypical cells (i.e., CIN I up to CIN IV).

Pap smear result and preventive screening

An abnormal Pap smear result was less likely in respondents who were screened more regularly compared to the respondents who came for the first time. The difference is significant (Chi-square=12.55, p<0.05; not presented in a table). The factor differentiating women who previously had a Pap smear prior to the national campaign and those who did not, was their level of education: The higher

educational level the respondent had achieved, the greater the likelihood that she had completed more than one Pap smear (Table 2.8). This was found to be statistically significant (Chi-Square=12.55; $p<0.05$).

Table 2.8 Percent done previous Pap smears by education and ethnicity.

N= 4898	% done previous Pap smear		
	Never	Once	Often
Education			
Primary incomplete	45.6	21.7	32.7
Primary complete	31.3	23.3	45.4
Middle school	28.9	23.9	47.3
High school >	19.1	21.9	59.0
Ethnicity			
Hindustani	25.2	23.5	51.3
Javanese	24.1	21.9	54.0
Creole	28.8	22.8	48.4
Maroon	56.5	23.4	20.1
Chinese	66.4	17.3	16.4
Mixed	26.0	23.1	50.9
Indian	38.5	29.8	31.7
White	7.4	14.8	77.8
Others	25.0	41.7	33.3

In addition, certain ethnic groups were more represented among women who had never done a screening before (Table 2.8). For instance, 56.5% of the Maroon respondents had not done a Pap smear before. The highest percentage of respondents within an ethnic group that had never had a Pap smear before were the Chinese (66.4%). Looking at ethnicity and level of education (not presented in a table), Chinese and Maroon women were less exposed to the educational system compared to women of the other ethnic groups. Relatively more Chinese and Maroon women had not completed primary school. A significant correlation was found between the level of education and Pap smear results (Kendall's Tau=-042; Spearman=-.046; $p<0.01$; not presented in a table). The more educated the woman, the less likely that she would have a higher CIN result.

Discussion

Pap smear results and age of first sexual intercourse

HPV infection is a very important cause of cervical cancer. Against this background, the number of children, high parity, and an early age at first sexual intercourse can be regarded as proximates or a surrogate measures for early age of first HPV infection (Muñoz & Bosch, 1996). The findings of the current study confirm that surrogates for early age at first HPV infection are related to higher risk of

contracting cervical cancer. This outcome also concurs with the findings of the WHO (2002), as well as of Briton (1992) and La Ruche et al. (1998), who identified multiple sexual partners, early onset of sexual activity, below the age of 18 or early childbearing, and below the age of 16 as risk factors. The early onset of sexual activity; early childbearing as well as early first pregnancy, are also proximal indicators for exposure to a HPV infection which eventually can lead to cervical cancer. Prevalence of HPV infections and cervical cancer will be high in cultures which allow or do not explicitly discourage such risk behaviors. Moreover, incidence of cervical cancer will be even higher in these cultures if preventive measures like vaccination and regular preventive screenings are not available.

Pap smear results and age groups

This study found more positive Pap smear results, atypical and abnormal, among older age groups. This stems from the fact that the risk of developing cervical cancer increases with age as the disease generally progresses slowly, starting with mild cervical dysplasia, a precancerous condition that regresses in about 60% of cases. It can, however, advance to severe dysplasia or carcinoma in situ (CIS), a treatable precursor of the invasive disease, and eventually to invasive carcinoma (PAHO, 1996b). However, younger women undergo Pap screening most often because they can take advantage of prenatal or family planning medical visits, where the test is often performed (PAHO, 1996b). Bearing in mind the natural course of cervical cancer, different approaches for young and older women should be considered in designing cost-effective prevention and control programs[2]. Young women who are not yet exposed to HPV could get vaccinated and prevent exposure to HPV. Older women should also be educated about behaviors which expose them to HPV, but secondary prevention, regular screening should be an important preventive approach in this group.

Pap smear results and use of oral contraceptives

The Suriname study found that prolonged oral contraceptive use is not associated with CIN II or III. This is in accordance with the findings of Kjellberg et al. (2000), but not with the findings of Muñoz (1992), who discovered an association between the use of the pill and cervical cancer (PAHO, 1996b). If the findings of Muñoz are taken into account, an increase in use of contraceptives in younger women would mean that up scaling of cancer prevention activities is needed to prevent an eventual increase in the incidence of cervical cancer in Suriname. Given that of all

[2] In most countries in Latin America, cervical cancer screening initiatives are linked to family planning and prenatal care programs. Between 1991 and 1994, 93 percent of the 84,016 women screened in Aragua State, Venezuela, were screened in family planning and prenatal care services. Thus, the women who were screened were young, usually in their 20s, and at a much lower risk of invasive cervical cancer than older women (PAHO, 1996a).

participants who used a contraceptive in this study 35% were using the pill, more research is needed regarding this issue. Specifically, it is important to know how exactly pill use could be related to the risk for cervix cancer.

Pap smear results and condom use

With regard to the use of condoms and Pap smear results, the Chi-square test indicated no significant difference in results of women who were using condoms compared to those who were not. This could be due to inconsistent condom use as only 4% of the condom users, these users were 7% of all participants, indicated using condoms every time they had An explanation why condom use is not very popular can be found in a study conducted by Lamur (1990) among Creole women living in the Netherlands. Lamur's study revealed that some women report that their husbands absolutely do not want to use a condom because condoms lower the pleasure of intercourse. One woman said that Surinamese women do not buy condoms because, if they do, they are considered "cheap". This confirms the theoretical model that the culture of the target group defines risk increasing and risk avoidance behavior.

The evidence that condoms protect against cervical cancer is limited. A significantly reduced risk of acquiring genital warts when using condoms was found (Wen et al., 1999), suggesting that condom use prevents HPV infection. However, other studies have found no significant association between the use of barrier methods and cervical cancer protection (Hildesheim et al., 1990). Importantly, HPV-DNA has been detected on genital warts, but also on the fingertips, suggesting a potential transmission of HPV infection by finger-genital contact (Sonnex et al., 1999).

Level of education was found as a proximal indicator of condom use. Women with a higher education are more likely to have condom-using partners. This might indicate that the culture of highly educated women favors the risk avoidance behavior condom use. This culture seems to put women in a better position and/or provide them with better skills and power to convince their partners to use a condom or have in their culture partners who are more willing to use a condom as risk avoidance behavior. Evaluating the effect of condoms as a barrier method requires a longitudinal study that includes reliability indicators for the effective and consistent use of condoms.

Ethnicity and frequency of testing

The present study also demonstrated that an abnormal Pap smear result is less likely in respondents who were tested more regularly compared to respondents who took the test for the first time. The percentage of women who had never had an examination according to ethnicity were Chinese at 66.4%, followed by Maroons at 56.5% and Amerindians at 38.5%. The Chinese live in urban areas, but the regular cervical screening program is not geared toward accommodating Chinese

with different dialects. Meanwhile, the Maroons and Amerindians live in the interior, where no institutionalized preventive screening program is available. Yet reaching these populations is extremely important as the reduction of incidence and mortality seems to be proportional to the intensity of screening efforts. Mortality from cervical cancer decreased in several large populations following the introduction of well-run screening programs, including in Nordic countries (Christopherson et al., 1976; Johannesson et al., 1978; Laara et al., 1987; Miller et al., 1976). The Scandinavian countries with the highest rates of screening activity reported greater reduction in mortality than those countries with lower rates of screening (Christopherson et al., 1976; Johannesson et al., 1978; Laara et al., 1987; Miller et al., 1976; Sigurdsson 1993).
Limiting exposure to HPV and early screening are the main avenues in preventing cervical cancer, until vaccination has proven its effectiveness in about twenty to thirty years after introduction. The impact of a future vaccination program will depend on the willingness to be vaccinated. Therefore, the impact will also be determined by the social and psychological obstacles related to vaccinating of non-sexual active young girls against a sexual transmissible infection.

Ethnicity and hygiene practices

Hygiene practices are an important part of especially the Maroon culture. It was found that indeed, among the Maroon women, 55% indicated that they are using other hygiene practices. This refers to traditions in this culture like, tightening and drying of the vagina. In discussing mourning practices, Terborg and Boven (1999) mentioned drying of the vagina. The drying and tightening of the vagina is a common practice among Maroons as well as being widely reported in many African countries (Kun, 1998). The main assumption with regard to cervical cancer is that this practice causes genital irritation and lesions in the vagina, which promotes the transmission of HIV and HPV. Maroon women find that this practice keeps their body healthy and promotes sexual pleasure and, consequently, are important in relation to satisfying the male's sexual needs. According to Terborg and Boven, both males and females find that the drying and tightening practice makes it difficult for the man to penetrate and causes bleeding during intercourse. This practice might increase the spread of HPV due to the dryness of the vagina and subsequent dry intercourse which through micro lesions, promotes HPV infections. However, this group of women also exhibits other behaviors that can be classified as high risk, which expose them to HPV. Therefore, follow-up research is needed to identify the contribution of hygienic practices to the spread of HPV.

Pap smear results and ethnicity

It is important to clarify the results related to ethnic background and Pap smears. First of all, the study focused on the culture of the target group, and identified risk

increasing behaviors and risk avoidance behaviors. Ethnic groups or sub-groups of women with the identified risk increasing behaviors are at a higher risk for cervical cancer. Besides these identified risk increasing behaviors, the study also looked at secondary prevention or early detection and frequency of screening, as risk avoidance behaviors. These behaviors may also be important in the prevention of cervical cancer. The Maroon have low frequency of examinations (56% completed the exam for the first time for this study). The Maroon culture seems to be associated with HPV infections in an early age and seems not to encourage secondary prevention or regular screening for screening for cervical cancer. The lesser secondary prevention behavior is due to the fact that the possibilities for screening are less in the areas, the interior, where most of the Maroon live.

Proximal indicators for exposure to HPV infections were found to be higher in the Maroon culture: multiple or visiting relationships; higher number of partners during one's lifetime and sharing (male) partners with other women.

The Maroon culture, which allows for multiple partners and the sharing of partners, has been documented by Terborg et al. (1999) in an examination of mourning practices. To end a mourning period, a man goes to the city and has sex with a commercial sex worker to purify himself. The widow needs to has sexual intercourse with a close relative of her deceased husband. Terborg ad Boven also concluded that the majority of men and women live separately from their partners—sometimes for years. This relationship pattern inevitably encourages the establishment of casual or short-term extramarital relationships. The mourning practices and the environment encouraging short-term casual extra-marital relationships increases the risk of contracting HPV among Maroon women in addition to their risk of infection due to intercourse at an early age, numerous sexual partners, and unprotected sex (Terborg & Boven, 1999). Thus, it seems that the Maroon culture which allows or promote getting pregnant at a young age and having many children, supports behaviors which expose the group members to early contact with HPV.

Cervical cancer incidence rates in ethnic groups

This study found higher positive Pap smear results, atypical and abnormal, especially among the Maroon population. This finding provides no support for Krul's conclusion that incidence rates in Suriname vary for Amerindians and Javanese: Amerindians and Javanese were more likely to develop cervical cancer than were other ethnicities (Krul, 1999). However, Krul studied cancer patients—persons with invasive cancer—while the current study looked at healthy, a-symptomatic women. Not all precancerous conditions develop into severe dysplasia or carcinoma in situ (Path, 2000). Although the issue of screening is quite pertinent for women living in the interior (i.e., Amerindian and Maroon women), the current study does not provide support for Krul's statement with

regard to Javanese women. Indeed, Javanese women were not identified as a high-risk group in the current study.

The reasons for the difference in outcome of my study and Krul's (1999) might stem from a variety of issues, including:

1. Differences in population studied: Krul used the files of the Department of Pathology—all newly diagnosed cases of invasive carcinoma from 1989 to 1994. Krul's data included women examined because of complaints or symptoms, while data for this study came from a preventive screening, mostly non-symptomatic women. The interval before seeking and/or receiving medical help or treatment may be longer for certain women, which could result in higher stages of cervical cancer at the time of the diagnoses. This is probably the case for the women which are part of the data of Krul and which causes the differences. This outcome suggests that Amerindians and Javanese seek or receive medical help or treatment in a late stage in the progression to cervical cancer.
2. Differences in methodology used: the diagnostic method of the current study is cytology, while histology was used in Krul's study—which is more sensitive with regard to invasive cancer.
3. Differences in age groups: Krul's sample included women aged 45 to 65—an age group in which invasive cancer is more frequent compared to the age group of the current study (i.e., 18 to 45). This difference raises the question of whether the progress of dysplasia to invasive cancer differs in ethnic groups.

Pap smear results and education

The Suriname study also found that the level of education is an important factor that significantly distinguishes women with a positive Pap smear result from those with a negative Pap smear result. This likely stems from the fact that educated women had been examined more often. A similar outcome was demonstrated in the Netherlands (Peters et al., 1998) as well as in the Caribbean, Barbados, and Grenada (PAHO, 1996a). Follow-up studies concluded that educational interventions targeted at socially and economically disadvantaged women provide them with information and at least short-term negotiation skills, with the potential of reducing the transmission of HPV (Shepherd et al., 1999). Similarly, it may that more relevant knowledge on HPV and HPV infection and better negotiating skills are responsible for the fact that women with a higher education level have a lower risk for HPV infection (Shepherd et al., 1999).

Women who have not completed high school were found to be three times less likely to have heard of Pap smears and were far more likely to be non-compliant with screening than graduates (Harlan et al., 1991). Low socio-economic status was therefore identified as a risk factor for cervical cancer as women of this group

have less access to adequate healthcare services, including Pap tests and treatment of precancerous cervical diseases (Hulca, 1982).[3]

A need exists to design preventive screening programs for cervical cancer, taking into account the level of education of the woman. The results of the Suriname study are in line with the notions that women with a lower level of education have higher risk because they:

- become sexually active at an early age;
- start having children at an early age;
- tend to have more children;
- are less likely to undergo regular screenings; and

are less likely to have condom-using partners.

[3] The risk of a woman dying of cervical cancer is strongly related to her socio-economic status and her educational background. Worldwide, the connection between poverty and cervical cancer is possibly evenly distressing. In Western societies, it is usually women from poorer social classes who run the highest risk of cervical cancer (Leiden University, 2002).

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Appendix

Questionnaire

Pap smear Vragenlijst
(BIJ ELKE VROUW AF TE NEMEN)

Plaats van het interview:	:
Datum	:
Interviewer	:
ID#.	:

Naam Cliënt (niet aan het begin vragen/achteraf invullen)

1. [1] Surinamer CBB ID #:.....
   [2] Surinamer zonder ID:
   [3] Guyanees
   [4] Europeaan
   [5] Braziliaan
   [6] Overige

b. Geb.datum: (dag/mnd/jaar).....

c. Bevolkingsgroep:
   [1] Hindoestaan
   [2] Javaan
   [3] Creool
   [4] Bosland Creool
   [5] Chinees
   [6] Gemengd (mix)
   [7] Indiaan
   [8] Kaukasiër (blanke ras)
   [9] Anders.....

d. Opleiding
   [0] Geen of GLO, niet afgerond
   [1] GLO, afgerond (6 jaren)
   [2] VOJ (MULO/LBGO), afgerond
   [3] VOJ (MULO/LBGO), niet afgerond
   [4] VOS (Middelbare schoolopleiding), afgerond
   [5] VOS (Middelbare schoolopleiding), niet afgerond
   [6] HBO opleiding, afgerond
   [7] Afgestudeerd Universiteit (Master of Doctoraal graad)

e. Type relatie
   Heeft U een partner?
   [0] Nee
   [1] Ja, we wonen samen
   [2] Ja, maar we wonen niet samen

f. Bent u religieus? Zo ja, wat is uw religie?
   [0] Niet religieus
   [3] Hindoe
   [1] Katholiek
   [4] Moslim
   [2] Christen (niet katholiek)
   [5] Anders.....

g. Waar woont U? (Woonplaats)

[1] Paramaribo	Plaats:	[7] Marowijne	Plaats:
[2] Wanica	Plaats:	[8] Brokopondo	Plaats:
[3] Nickerie	Plaats:	[9] Para	Plaats:
[4] Coronie	Plaats:	[10] Sipaliwini	Plaats:
[5] Saramacca	Plaats:	[11] Onbekend	Plaats:
[6] Commewijne	Plaats:		

PART II

1.a. Heeft u kinderen?
[0] Nee
[1] Ja (naar vraag 1.b.)

1.b. Hoeveel kinderen heeft u van de volgende leeftijden?

Leeftijdsgroep	Aantal
Kinderen van 0 tot 4	
Kinderen van 5 tot 12	
Kinderen van 13 tot 18	
Kinderen ouder dan 18	

2. *Hoeveel zwangerschappen heeft U doorgemaakt?*
.....
3. Hoe oud was u toen u voor het eerst zwanger raakte?
.....
4. Hoe oud was u toen u uw eerste menstruatie hebt gehad?
.....
5. Hoe oud was u toen u voor de eerste keer seksuele omgang had?
.....

6.a. Heeft u vroeger voorbehoedmiddelen gebruikt?
[1] Condoom
[2] Pillen
[3] Zaaddodende middelen
[4] Prikpil
[5] Spiraal
[6] Pessarium
[7] Sterilisatie
[8] Natuurlijke methoden
[9] Anders
[10] Geen

6.b Welk voorbehoedmiddel gebruikt U nu?

[1] Condoom	[6] Pessarium	
[2] Pillen	[7] Sterilisatie	
[3] Zaaddodende middelen	[8] Natuurlijke	methoden
[4] Prikpil	[9] Anders	
[5] Spiraal	[10] Geen	

7. Gebruikt u een condoom:
[0] nee
[1] ja, soms
[2] ja, in de meeste gevallen
[3] ja, altijd

8. Rookt u?
[0] nee (doorvragen, hebt u vroeger gerookt?)
[1] ja, in het verleden aantallen [ ]halfjaar [ ]
[2] ja rook nu; aantallen [ ]halfjaar [ ]

9. (Voor rokers). Hoeveel sigaretten rookt u nu per dag?
.....
10. (Voor ex-rokers) Hoeveel sigaretten rookte u per dag?
.....
11. Hebt u eerder een uitstrijkje laten doen?
[0] Nee
[1] Ja, een keer
[2] Ja, vaker

12. Hebt u ooit een afwijkende uitslag gehad?
[0] Nee
[1] Ja
[99] Weet niet

13. Bent u n.a.v. de uitslag verwezen naar een specialist?
[0] Nee
[1] Ja
[99] Weet niet

14. Bent u, toen u verwezen was, aan uw baarmoeder geopereerd?
[0] Nee
[1] Ja
[99] Weet niet

15. Hebt u een van de volgende klachten?
[1] Jeuk
[2] Afscheiding
[3] Bloedverlies na seksuele omgang
[4] Wratten
[5] Blaasjes of wondjes
[6] Anders:.....

16. Waarmee reinigt u uw vagina dagelijks?
[1] Water
[2] Water en zeep
[3] Anders:.....

17. a. Bent u bang voor het uitstrijkje?
[0] Nee (bedank cliënt voor haar bijdrage)
[1] Ja (ga naar 17.b.)

b. Kunt u aangeven hoe bang u bent?
[1] een beetje
[2] nogal
[3] erg
[4] heel erg

18. Waar bent u eigenlijk bang voor? (meer dan een antwoord mogelijk)
[1] Ik ben bang dat het onderzoek pijn zal doen.
[2] Ik heb sterk het vermoeden dat ik baarmoederhalskanker heb, ben bang voor de uitslag.
[3] Ik ben bang dat, als kanker gevonden wordt, ik niet te helpen ben.
[4] Ik ben bang dat een positieve uitslag negatieve invloed op mijn leven en dat van mijn familie zal hebben.
[5] Ik ben bang voor besmetting tijdens het baarmoederonderzoek.
[6] Ik ben bang dat mijn uitslag niet geheim zal blijven.

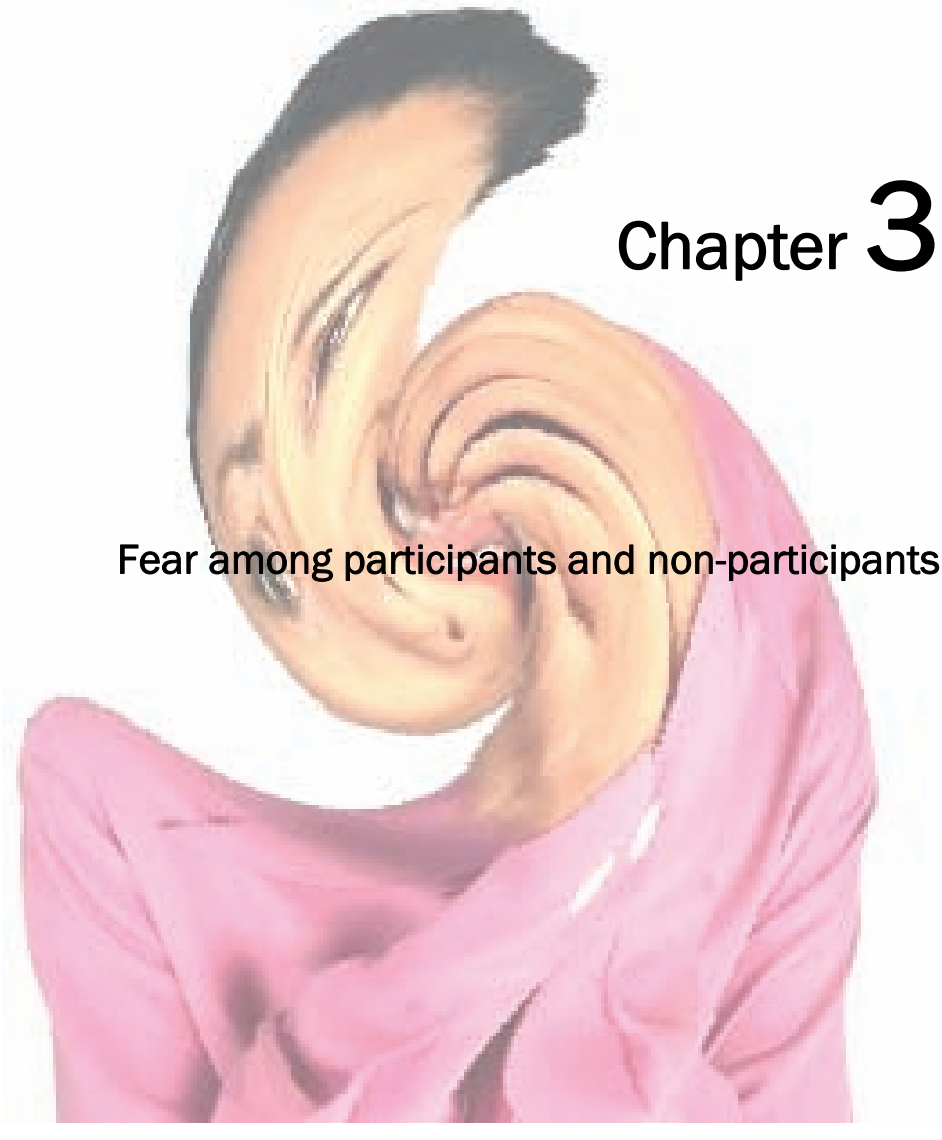
18.a. Hebt u in de afgelopen 6 (zes) maanden veel stress/ problemen gehad?
[1] Nee
[2] Nogal
[3] Veel
[4] Heel veel

18.b. Als u denkt aan de afgelopen 6 maanden.

[0] Nee	[1] Ja	Voelde u zich zenuwachtig of zeer gespannen?
[0] Nee	[1] Ja	Hebt u wel eens niet kunnen slapen vanwege stress of problemen?
[0] Nee	[1] Ja	Hebt u uw werk minder goed kunnen doen vanwege stress problemen?
[0] Nee	[1] Ja	Heb u aan anderen hulp gevraagd omdat de stress of problemen u teveel werden?

(Vertaling voor alleen Surinaams sprekenden)
If we luku den sixie mung sa pesa,

- Senwe ben nak ju noso ju ben spang.
- I no ben mang sribie bikasie ju ben abi tumsi fur problema.
- I no ben man fu du ju wroko becasi ju ben abi tumse fur problema.
- I ben aksi epi fu trasuma becasi ju ben abi tumsi furu problema.



Chapter 3

Fear among participants and non-participants

Abstract

This study deals with differences between participants in a screening program for cervical cancer and non-participants (i.e., women who were informed and educated about the screening program for cervical cancer but were not screened). Of the 4,898 women who did participate in the Pap smear examination, 1,398 indicated experiencing fear. The current study compared these women to 203 non-participants who also indicated to have experienced fear. The comparison was done using a four-point Likert scale. The results showed that non-participants significantly more often reported high fear for screening compared to participants. No difference in fear between educated and less educated women emerged. The present data suggest that fear of detecting cancer interferes with participation in the screening; despite satisfactory knowledge about cervical cancer and a secondary-level education, women decided not to be screened due to higher fear intensity levels. Such a fear puts these women at risk of non-detection of developing cervical cancer. Hence, prevention and promotion strategies based on creating awareness about risks and severity of cervical cancer may not be sufficient—even among well-educated women—to result in them participating in a screening program. Motivating women with high fear intensity to participate in a screening program for cervical cancer requires providing them with the means to deal with the high fear intensity, thereby enabling them to make rational judgments.

Introduction

Screening for cervical cancer can lead to early detection and treatment, which increases the chance of cure, recovery and the reduction in the incidence of advanced disease and related deaths (Chamberlain, 1993). Other important benefits of screening are improved prognosis, less radical treatment, reductions of public health financial costs, and reassurance for women who receive a negative test result. In order to increase the number of women who participate in preventive screening programs for cervical cancer, it is necessary to understand thoroughly which factors influence the decision to participate or not participate despite the awareness of the dangers of cervical cancer and knowing when and where the screening can be done free of charge.

Early detection of cancer is the best way to survive it, which is why doctors recommend routine checkups and screenings. Still, individuals often fail to participate in cancer screening, even when they are at risk (for example, Mayo et al., 2001). Studies carried out in various parts of the world have indicated that numerous barriers exist to women participating in cervical cancer screening programs. For instance, Pacific women living in New Zealand mentioned that their participation in cervical cancer screening projects might mark them as socially problematic, violating the sacred nature of human sexuality (Jameson et al., 1999). These women were also concerned about the possible lack of confidentiality with community groups, and felt uneasy about the perceived association between cervical cancer and sexual activity (Jameson et al., 1999). Other grounds for non-participation included administrative errors, a lack of female screeners, inconvenient clinic times, a lack of awareness of the test's indications and benefits, poor comprehension of the screening procedure, and the denial of being at risk for cervical cancer (Fylan, 1998). Further reasons that have been mentioned include concern of embarrassment, fear of pain, concern about the possible detection of cancer, and/or anxiety caused by the possibility of an abnormal Pap smear result (Fylan, 1998).

A qualitative study using focus groups in two urban settings in Mexico City reported the following reasons for non-participation. A lack of knowledge about the etiology of cervical cancer, insufficient information about the Pap test, and the belief that cancer is an inevitably fatal disease (Lazcano-Ponce et al., 1999). Additional barriers included problems in client-provider relationships, the view that there were more urgent things in life, opposition by male sexual partners, rejection of the pelvic examination, long waits for sample collection and results, and the perceived high costs of care (Lazcano-Ponce et al., 1999).

Thus, non-participation in cervical cancer screening programs has been justified with a broad range of reasons, including fear of learning that one has cancer. Although early detection is the surest way to survive cancer, the prospect of learning that one has cancer is terrifying (for example, Cameron, 1997). Indeed,

even thoughts of disease detection practices elicit negative affect and cancer itself is typically associated with negative thoughts such as pain, suffering, and intense fears of death (Ferrell et al., 1998; Baum et al., 2001). From a behavioral perspective, when an individual perceives “fighting” as being too risky and “flight” as being ineffective, he/she may resort to “freezing”. Such an individual does not undergo the test (fighting back) or shut off all related information (running away), but instead becomes informed and then resorts to not participating (immobility). Thus, fear might cause non-participation in screening programs.

In accordance with this notion, a lack of fear of the consequences of screening appeared to be the most important predictor of attendance for cervical smears (Murray et al., 1993). Of note, women with relatively little fear of cancer were generally better educated and had better knowledge and quality information about cervical cancer than those with higher levels of anxiety (Gutteling et al.,1986). Furthermore, in comparison with the latter group, the former was more apt to behave preventively, had a lesser estimation of the chance to acquire the disease, and perceived cancer as less threatening (Gutteling et al.,1986).

Not surprisingly, more educated women participated in preventive screening programs because they were more willing to accept information about health and engage in preventive behavior including cancer detection activities (Gutteling et al.,1986). On the other hand, a relatively low level of education coupled with a relatively high level of anxiety about cancer may interfere with the acceptance of information about health (Gutteling et al.,1986). Furthermore, stress caused by the diagnosis and/or the treatment of cancer may precipitate a relapse of pre-existing anxiety disorders (Maguire et al., 1993). Despite our knowledge of this situation, the fear of cancer as a barrier for screening is often neglected in screening campaigns and evaluations.

Fear as a psychogenic stressor

A person experiencing fear might have a narrowed frame of reference, a tendency to focus on the discomfort, and feelings of irritability and insecurity about what might happen next. Avoidance behavior occurs when a person seeks to minimize possible trouble by staying away from potential danger. A person may become so obsessed with avoiding distress that fear begins to control his/her life and inspire avoidance behavior. This can result in the avoidance of cervical cancer examinations or information on the results of the cervical cancer examination. Reasons for fearing the examination can vary from person to person, but thinking of or anticipating that the Pap smear examination will detect cervical cancer may evoke thoughts of death. That is, because cancer is strongly associated with death, the issue of cervical cancer screening may lead to a salient experience of mortality. This mortality salience induces fear.

With respect to dealing with fear, Hamilton (1980,1982) and Lazarus and Folkman (1984) developed a psychological model for the appraisal of stressors and unfavourable implications (see Figure 3.1).

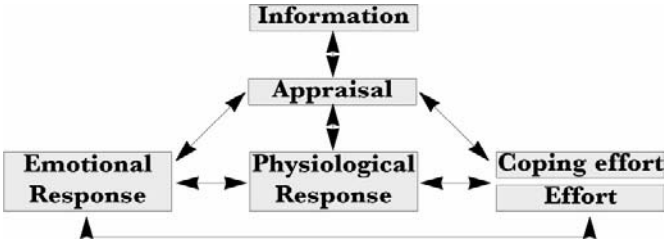


Figure 3.1. Psychological model for the appraisal of stressors and unfavourable implications (Hamilton, 1980, 1982; Lazarus & Folkman, 1984)

Responses to stressors depend on the appraisal of the stressor (e.g., the event). Thus, it is not the event itself, but rather the meaning given to the event, the appraisal, that makes an event stressful. The same event can have different meanings for different persons depending on their appraisal of the event. The appraisal may lead to specific emotions (e.g., anger, fear), which have physiological effects (e.g., stress response) and to specific coping efforts, which also have their physiological effects (e.g., lowering of stress response). The appraisal not only concerns the confrontation with actual stressors, but also the anticipation of stressors, for example, the cervix cancer screening.
If we consider the cervical cancer examination using this psychological model, a person who appraises the cervical cancer examination as a threatening event – because it may detect cancer - may display emotional responses and rely on emotionally focused controlled efforts to cope with the situation. The threat of the possibility to detect cervical cancer may lead to mortality salience which then serves as a psychogenic stressor. When the coping response lowers the level of stress and negative emotions with regard to screening, this response is reinforced. When the coping response is avoiding cancer screening, this response is reinforced, it feels good, provides relief. This explains why routine screening for cervical cancer can become a psychogenic stressor and, in this case, can motivate women to avoid it (Gutteling et al., 1986).

The fight, flight or freeze model

The fight and flight model, in which freeze can also be seen as a way of flight, provides an explanation for the nonparticipation of women in a cervical screening program. This model is based on a behavioral perspective portraying fear as a form

of emotional reaction to a perceived punishment or threat. The person will try to solve this by trying to avoid this threat, trying to escape from it, or trying to terminate it in some way. According to this behavioral model, the person has the option to choose one of the three "F's": fight, flight, or freeze. Fight refers to improving the individual's chances of survival by maximizing his or her fighting potential against an imagined or real threat (i.e., attacking). With regard to cervical cancer, this response can be observed as motivated processing of information on screening, attending the screening and getting the screening result. Those adequate responses can be observed when fear is not too strong. That is, when the fear passes an individual threshold, self-regulation may be no longer directed at averting the danger (i.e., the possibility of having cervix cancer) but at immediately lowering the aversive state of fear (i.e., flight, freeze). Whether a threshold is passed, depends on the appraisal of the threat. Flight and Freeze involve different clusters of actions to escape from the threat by not confronting the actual cause of the threat. With regard to cervical cancer screening this response can be observed as motivated avoidance of information on screening and non-attendance.
Murray (1993) found that the most important predictor of attending cervical smears was the lack of fear of the consequences of the investigation or, in other words, a low mortality salience. This means that a strong obstacle to cervical cancer screening participation is the fear of learning that one has cancer. Given the findings of Murray and McMillan, it can be concluded that negative expectations and attitudes with regard to gynecological examinations and Pap smears which causes the experience of high mortality salience, can result in resorting to immobility, shown by women's reluctance to seek screening. Thus, the level of fear for screening may determine whether women choose to avoid the "risk" of screening or whether they will attend screening to avoid the (risk of) cervical cancer.

Justification

Being informed about cervical cancer and having the opportunity to be screened, provides a women with the opportunity to exhibit risk avoidance behavior through participating in the screening program, or exhibit risk increasing behavior through non-responding to the screening option. In the fight and flight theoretical model, screening is choosing the fight option and non- responding is choosing the flight/freeze option. Screening programs for cancer give no or little account to these options women have and use, when they experience mortality salience. Participants of the cancer screening program addressed in the previous chapter, were asked to rate their fear on a four point scale. The number of women screened in the national screening program who reported to experience fear , was far lower than expected given talks we had with these women and the discussions among each other while waiting to be screened. It was assumed that fear experiencing

was being denied, and low fear scores were probably due to the use of proximal defence mechanisms like suppression.
This study explores the difference in level of fear between women screened for cervical cancer (participants), and women who did not participate in the screening program (non-participants) to determine if the appraisal of fear might have influenced the women's actions.

Methods

Participants

Two groups of women—participants in the nationwide screening program and non-participants—were compared with respect to their levels of fear related to a Pap smear screening. The participants filled out the questionnaire when they were waiting to do the Pap smear screening. The second group, non-participants, consisted of women who had been informed of the campaign but did not participate. They filled out part of the questionnaire while at work and in addition were asked to mention the reasons for non-responding. This group consisted of women recruited among employees at a local bank and an insurance company; they are all working middle class women.
Both groups of women had been informed about the Pap smear screening campaign through the mass media and face-to-face programs and activities. The mass media programs consisted of television and radio programs. In addition, motivational activities aimed at individuals consisted of visits by members of a women's movement or Lobi staff. Leaflets were left at homes and in certain areas. Just before the actual screening, a sound truck went around during the examination hours calling on women to visit the clinic. At the two companies, just before the actual screening, the promotion at the workplace was conducted by staff of the information and education department of Lobi. The screening services were available at the worksite, in addition to the screening option at the polyclinic of Stichting Lobi.
The participants, the screened women, completed a 38-item questionnaire covering risk factors presumably associated with a positive Pap smear result as well as a number of questions about demographic variables and about fear. The non-participants completed only part of the questionnaire dealing with demographic variables and fear (see Appendix of previous chapter). In addition they had the option to mention the reason for not participating in the screening program, using an open question.

Assessment of fear

Levels of fear were assessed using a four-point scale as part of the questionnaires filled out by participant and by non-participants. This scale was an adapted Likert scale, which is often used by psychologists to perform psycho-social measurements. The standard Likert scale has five response options: “Strongly agree,” “agree,” “undecided,” “disagree,” and “strongly disagree.” Firstly, women were asked whether they feared the Pap smear procedure (Yes/No). Secondly, those who answered “yes” were routed to the question about fear. The question was ”Are you afraid of the Pap smear?” The current questionnaire provided four response options to indicate the intensity of fear, leaving out an option for undecided: “a little bit fearful,” “somewhat fearful”, “fearful,” and “extremely fearful.” By labeling each scale point, all participants attach the same concept to a numerical value. This helps avoid misinterpretation of scale definitions. In addition, verbally defining each scale point allows reports to be written in more concrete terms, such as “x % were satisfied” (Devlin Marketing Research, 1993). Besides the assessment of fear, the women who participated in the screening and reported fear were asked what they feared. They were provided with several possible reasons for their fear (e.g., fear for the pain of the examination, fear for the result) they could check.

Data processing and statistical analysis

The scores of the levels of fear of the non-participants were compared to those of the participants. To this end, the number of responses per option was determined for each group of women and expressed as a percentage for that group. These values were considered to be at the ordinal level and were subsequently compared to each other using the Chi-square test, the Kendall Tau test, as well as the Spearman rank non-parametric correlation for analyzing differences. P values of less than 0.05 were understood to indicate statistically significant differences.

Results

Characteristics of the sample

The main difference between the participants and the non participants is their level of education (Table 3.1).

Table 3.1 Relevant Demographic Characteristics of Participants and Non-participants.

	Participants		Non-participants	
	Number	%	Number	%
Total	4,989	100.0	203	100.0
Distribution by ethnic origin				
Hindustani	1,317	26.9	33	16.3
Creole	1,508	30.8	74	36.4
Javanese	818	16.7	25	12.3
Maroon	421	8.6	8	3.9
Chinese	108	2.2	2	1.0
Amerindian	103	2.1	2	1.0
Caucasian	29	0.6	27	13.3
Mixed	584	11.9	32	15.8
Other	10	0.2	0	0
Distribution by age				
0-19 years	103	2.2	0	0.0
20-29 years	1,450	29.6	34	16.7
30-39 years	1,858	37.9	70	34.5
40-49 years	981	20.0	53	26.1
50+ years	506	10.3	27	13.3
Missing data			19	9.4
Distribution by formal education				
Primary education incomplete	213	15.3	5	2.5
Primary education complete	408	29.3	28	13.8
Secondary education	475	34.1	106	52.2
High school or more	297	21.3	64	315

The level of education of non-participants is significantly higher compared to the level of education of participants. Chi-square 17.83 df=3 p=0.0004

Of the screened women 1.393, (28%) admitted to having experienced fear. Of the group of 203 non-participants 34 (17%) who admitted to having experienced fear. The latter were all informed about the screening program and had the opportunity to be screened. Information about their fear was not available before hand. In both groups the largest age group is 30-39 years of age and the majority of women, about 87%, in the age group 20-49.

Reasons for not participating

The non-participants provided their reasons for declining the Pap smear examination (Table 3.2). As mentioned earlier, thirty-four women (17%) mentioned their fear of the Pap smear examination as the reason for not participating in the program. Other reasons included lack of time (approximately 3%), their menstrual cycle (22%), and their lack of knowledge of the date of the examination (32%). Because of the limited possibilities at the workplace, no further questioning was done, to asses if fear might have been a reason for non-responding for women who did not mention fear but other reasons.

Table 3.2 Reasons for not responding.

	Number N=203	%
Did not know the date of the examination	63	(31.0)
Menstruation	44	(21.7)
Afraid of the examination	34	(16.7)
On vacation or on leave	19	(9.4)
Had an uterus operation	15	(7.4)
Confidentiality	10	(4.9)
Other	6	(3.0)
Lack of time	5	(2.5)
Missing data	7	(3.4)

Reasons for fear among participants

Of the 1393 participants, women with fear who got screened, (not presented in a table), 24% were afraid to experience pain during the examination while 4.5% were afraid of having cervical cancer. Less than 1% of the women were afraid of catching an infection during the examination. In addition, less than 1% were worried about the ethics/confidentiality of the health staff or were afraid that they would not be able to cope with a positive result.

Fear among participants and non-participants

If we compare the participants in the cervical screening program and the non-participants on their level of fear intensity, it seems that approximately three quarters of the participants, as well as the non-participants mentioned having no fear of the Pap smear screening (Table 3.3). Only those participants and non-participants who indicated to experience fear were eventually used in the comparison. Approximately one quarter of the participants and one eighth of the non-participants were a little afraid and 3% of the participants and 5 % of the non-participants groups were somewhat fearful. Fearful to extremely fearful were 1% of the participants and 7% of the non-participants. This difference in intensity of fear between the two groups is statistically significant (Chi-square 181.12; df 3; $p<0.01$). Thus, among the non-participants, more women were (extremely) fearful.

Table 3.3 Intensity of fear among participants and non participants.

Levels of fear (%)	Participants N=4,898	Non-participants N=203
No fear	73	75
A little fearful	23	13
Somewhat fearful	3	5
Fearful	0.5	2
Extremely fearful	0.5	5
Total	100	100

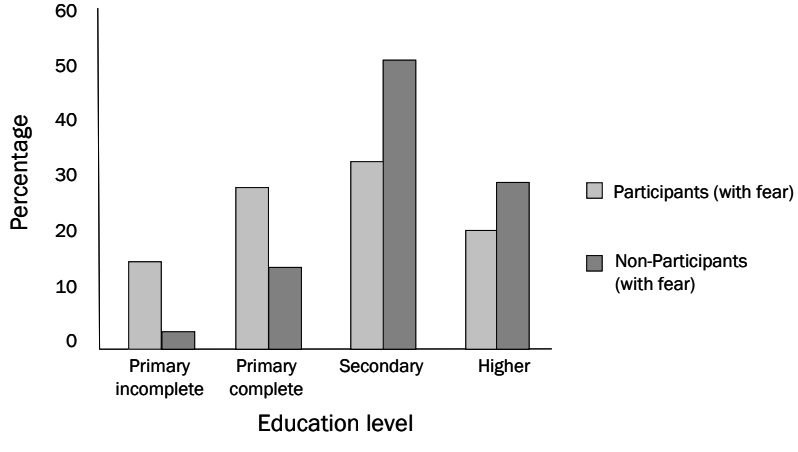
Fear by ethnic background, age and education

This study found no statistically significant differences with regard to levels of fear for the screening, measured on a four point Likert scale on the one hand and ethnic background and age on the other hand. In addition, no significant correlation existed between levels of fear and levels of education in either participants or non-participants (Chi-square 5.45; df 3; *p*=0.14). Thus, the appraisal of the screening seemed to be independent of education and age.

Discussion

Among the participants, no difference was found in level of fear when education is considered. Education does not seem to buffer against fear. Lamadrid (1995) also found that of women in three educational categories examined, a similar percentage (i.e., 7 to 10%) reported fear about doing the test. Among the participants with fear and the non-participants with fear, a significant difference in fear was found although the latter have a significant higher level of education. (Graph 3.1) Gutteling, found that participants who are relatively higher educated exhibit less fear compared to participants with lesser education. (Gutteling et al. 1986) Based on Guttelings findings, it could be expected that the higher educated non-participants should experience less fear compared to the lesser educated participants if education buffers against fear. This could not be confirmed for fear experiencing participants and non-participants..

Graph 3.1 Education of participants and non-participants with fear.
The level of education of non-participants with fear is significantly higher compared to the level of education of participants with fear. Chi-square 12.88 df=3 p=0.005.



Comparing participants and non-participants, the current study found a significant difference between the intensity of fear among non-participants compared to the participants. Gutteling et al. (1986) found that women with a low level of fear of cancer have greater intentions to behave preventively. The current study further demonstrated that higher levels of fear distinguish participants and non-participants, which—according to the psychological interpretation model for stress developed by Hamilton (1980, 1982) and Lazarus and Folkman (1984)—means that the appraisal of the non-participants of the Pap smear screening is more stressful or threatening compared to the participants' appraisal.

Fear among target groups for cancer screening is rarely considered and included in cervical cancer screening campaigns; yet it might represent an important reason for women to decline to participate in such programs. Several studies have mentioned that anxiety often manifests itself in individuals at various times during cancer screening, diagnosis, treatment, or recurrence. It can sometimes affect a person's behavior with regard to his or her health, thereby contributing to a delay in or neglect of measures that might prevent cancer (Gram et al., 1992; Lauver & Ho, 1993; MacFarlane & Sony, 1992).

The idea that one would have to cope with the diagnosis of cancer is a psychogenic stressor that - by a part of the non-participants - was judged as potentially or relatively more unfavorable in regards to implications or outcomes of not screening; consequently, they resorted to an avoidance response.

In this study, the fear of undergoing a Pap test was evident in women from all educational levels. Studies have also shown that responding in an unproductive manner can take the form of not seeking screening; confronting the prospects of cancer can arouse a number of defensive reactions that can interfere with productive health steps, such as cancer-screening behaviors (Bowen et al., 2003; Cameron, 1997; Olson & Morse, 1996; Race & Silverberg, 1996). Being able to suppress the activation of death-related cognition after thinking about cancer would facilitate a more proactive interest in performing screening behaviors. In contrast, if people are unable to suppress the activation of death-related thoughts, they may be pressed to respond through other means (for example, be more avoidant of pursuing diagnostic information and be less inclined to engage in screening behaviors; Arndt et al., 2007). Another theory proposes the so-called U-shaped response of self-protective behaviors: low levels of fear intensity would lead to inaction, moderate levels would produce self-protective behavior, and high levels would result in counterproductive defensive responses (Rothman et al., 1997). The idea to do a cervical screening resulting in the woman knowing if she is developing cervical cancer, might be a particular circumstance in which the U-shaped response of self-protective behaviors occurs. The fear among the non-participants is of such intensity that it leads to counterproductive defense responses.

Theories explaining counterproductive defensive responses due to high fear use cognitive load as a explanatory mechanism. High cognitive load interferes with objective decision making. Non-participation in the current study seems to be related to higher levels of fear, which can reduce a person's capacity to make rational judgments. Reduction of the capacity to make rational judgments because of a high level of fear is in accordance with the findings of Nathoo (1988), who investigated the attitudes of non-participants and concluded that attendance was inhibited by a high level of anxiety about the test and cervical cancer as a result of incorrect beliefs and concurrent family difficulties. One reason for judging the outcome of the screening as potentially unfavorable by the non-participants could also be that they have experienced cancer in their lifetimes, which subsequently intensified their fear. Lauver and Ho (1993) propose that a cancer diagnosis or potential cancer diagnosis may aggravate anxiety conditions that women have already experienced; this anxiety may interfere with the ability of women to absorb information or follow through with the procedure or treatment. However, the current study did not consider previous exposure of the non-participants to cancer in their environment. Besides fear, other reasons mentioned by the non-participants for declining a Pap smear examination included not knowing the date of the examination, the monthly menstruation cycle at the time of the examination, being on vacation, having had a uterus operation, confidentiality, lack of time, and other reasons. The study does not provide information to what extend some of these reasons present functional attributions to not have to think about the threat, and to what extend the persons have given socially accepted answers. In addition, according to Nisbett and Wilson (1977) introspective reports can provide only an account of "what people think about how they think" but not "how they really think".. Especially not knowing the date of the examination (31%) could be a functional attribution, because not only were the persons informed about the date, the examination was done at the workplace, which makes having forgotten the date a non-issue. In addition, they could still have done the screening at the polyclinic of Stichting Lobi, in the same city.

The data show that among the non-participants, there were especially fewer women with low fear and more women with strong fear, compared to the participants. One reason for a higher fear intensity in the non-participants could be more incorrect beliefs about cervical cancer and the examination. A study conducted by Aguilar among Hispanic women in New York City indicated that this factor—lack of knowledge or belief in erroneous concepts about the origins and development of the disease—was most closely associated with women's failure to seek regular screening. If such anxiety is not reduced or treated, preventive screening programs will fail to address current needs in regards to encouraging women to complete an examination (Aguilar et., al 1996).

- More anxiety- prone women will not participate in a cervical screening program because the intensified fear interferes with their ability to seek follow-through with the procedure in a rational manner. Several studies have shown that confrontation with the prospect of cancer can arouse a number of defensive reactions that can interfere with productive health steps, such as cancer screening behaviors (Bowen et al., 2003; Cameron, 1997; Race et al., 1996). Women can avoid pursuing diagnostic information and be less inclined to engage in screening behaviors if they are unable to suppress the activation of death-related thoughts (Arndt, 2007). The current study demonstrates that, to encourage healthy behaviors, powerful forces involving social, psychological, and environmental conditioning in the culture need to be overcome. The benefits of such a behavior change must be compelling. According to Health Belief model changes in behavior depend on five factors:
- Perceived severity: the woman's belief that cervical cancer is a serious problem
- Perceived threat: her belief that she is susceptible to cervical cancer
- Perceived benefit: her belief that changing her behavior will reduce the threat
- Perceived barriers: her perception of the obstacles to changing her behavior
- Self-efficacy: her belief that she has the ability to change her behavior and overcome her high fear intensity (Glanz, et., all 2002).

Research is needed how these factors are dealt with in the specific cultures of the target group and how they impact on fear and on risk increasing or risk avoidance behavior. It is however clear, that providing information alone is not enough because providing information and education as well as the promotion of screening for cervical cancer does not always result in participation of the target group in the screening program. Such programs might even be counterproductive in high fear intensity women, promote risk increasing behavior and decrease the chance that the women will participate. The study suggests that mortality-related health promotion campaigns for preventive cervical cancer screening, might unintentionally increase mortality salience, and hence discourage among high fear intensity women, the very preventive screening behavior or risk avoidance behavior, which the campaign is aiming at among the target group.

Further study is needed about the other reasons mentioned for non-participation. These reasons are also mentioned in other studies. Fylan (1998) mentions; administrative failures, inconvenient clinic times, lack of awareness of the test's indications and benefits, considering oneself not to be at risk of cervical cancer and fear of embarrassment, pain, or the detection of cancer, anxiety caused by receiving an abnormal cervical smear result and poor understanding of cervical screening procedures.

The outcome of this study also indicates the need for further study of the use of defense mechanisms in fearful situations. Women who have the option or are waiting to do a cervical cancer screening, seem to have psychological defense

mechanisms to their disposal to deal with the experienced fear. A study about the use of defense mechanisms has been done and will be presented in the subsequent chapter.

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Chapter 4

Fear management and type of cervical cancer screening

Abstract

Concepts of the Terror Management Theory (TMT) were used in an empirical, hypothesis-testing study to explore fear in women who wait to be examined for cervical cancer using VIA methodology or the Pap smear methodology. The assumption is that because of the association between cancer and death, these women are reminded of their mortality while waiting. The TMT assumes that the consciousness of one's own mortality can be regarded as a source of existential anguish. Proclivities for survival creates potentially paralyzing anxiety, which people manage by investing in a meaningful conception of the world (worldview) that prescribes valued behavior and thus also a way to maintain self-esteem. The respondents in the present study were women who were in the policlinic waiting to be screened for cervical cancer. These women were divided into two groups; one was waiting to be examined using the VIA screening and they would receive their result instantly while the other group was waiting to be examined using the Pap smear screening and they would receive their result in four to six weeks. The results show that self-esteem moderated the influence of the screening method on fear and on world view defense. It is concluded that the levels of fear of women waiting to be screened can at least partly be understood from the perspective of TMT.

Introduction

In addition to the Pap smear screening methodology for cervical cancer, in Suriname the VIA methodology was initially piloted by Stichting Lobi with funding from the WHO/PAHO and continued with funding and assistance from the University of Leiden. This technique - known as visual inspection screening, involving the application of acetic acid (4% vinegar) on the cervix to allow for a naked-eye inspection for typical acetowhite coloration of precancerous lesions - was promoted because the Pap smear methodology determined a low occurrence of premalignant lesions, which is not in accordance with the high incidence of cervical cancer in Suriname. This incidence must originate from a population with a high prevalence of premalignant lesions (Grünberg, 2008). A disadvantage of the Pap smear analysis is that it takes four to six weeks to get the screening results; when trying to find a woman with a positive result, chances are that she has either moved to another district or place—possibly in the interior—or to another village, which makes finding and treating her extremely remote. The VIA methodology is cheaper and, combined with Cryo therapy, has the advantage over the Pap smear method in that the woman can be diagnosed and treated in one polyclinic session.
For women, the issue of cervical cancer is associated with fear. Several studies have shown that fear often manifests itself in individuals at various times during cancer screening, diagnosis, treatment, or recurrence (Gram & Slenker, 1992; Lauver & Ho, 1993; MacFarlane & Sony, 1992). Waiting to be screened for cervical cancer is expected to evoke fear and salience of mortality in both screening methods; in the VIA-Cryo screening with immediate result and in the Pap smear screening with delayed result. Thinking about cancer can be expected to increase the accessibility of death-related thoughts and according to TMT, persons will try, one way or another, to get rid of this reminder of mortality (Arndt et al., 1997). However, one central expectation in the present study is that mortality salience and fear in the waiting room are stronger when women know that they will receive the screening result immediately after the examination (VIA method) compared to when they know that they will the receive the result after weeks (Pap method).

TMT and cultural views, self-esteem, and hostility toward others

According to TMT, thoughts of one's mortality lead to existential anxiety that people are motivated to avert by different means. TMT distinguishes between two primary defense mechanisms to ward off awareness of mortality: cultural worldview validation and self-esteem enhancement.
Cultural worldviews are belief systems that instil the world with meaning and structure. They offer answers to basic existential issues, such as the meaning and purpose of life as well as what happens after death. Investing in a cultural worldview allows us to expand our self-worth well beyond the physical self. Our cultural worldview is a "symbolic protector" between the reality of life and

inevitability of death. If it is threatened by the worldview of others, it often results in one's self-respect being endangered. In such a situation, people not only endeavor to deny or devalue the importance of others' worldviews, but try to controvert the ideas and opinions of others which may, consequently, escalate into a conflict. As a result, mortality salience increases stereotypic thinking and intergroup bias among groups.

When people are reminded of their own inevitable death, they cling more strongly to their cultural worldviews. Nations or persons who have experienced traumas (for example, on September 9 2001) are more attracted to strong leaders who express traditional, pro-establishment, authoritarian viewpoints. They will also be hyper-aware of the possibility of external threats, and may be more hostile to those who threaten them. The Dutch Royal Military Academy in collaboration with Mark Dechesne of the University of Groningen found that the higher the soldiers scored on a fear of death scale, the more negative their attitudes were toward working with soldiers from other European countries (Dechesne et al., 2007).

This cultural worldview imposes order, meaning, and permanence on existence and self-esteem, which enables us to view ourselves as important contributors to this meaningful and eternal reality. Validation from others is an important process for the effectiveness of both cultural worldviews and self-esteem. Those with different beliefs, values, and perceptions undermine this effectiveness, making us vulnerable to existential anxiety. Thus, cultural worldviews provide protection from existential anxiety and are, therefore, of vital importance for relatively anxiety-free living.

The second defense mechanism—self-esteem—depends on successfully living up to cultural prescriptions and ideals. Self-esteem also provides protection against concerns about mortality and reduces the worldview defense produced by mortality salience (MS). Through self-esteem, we achieve protection from mortality with a kind of symbolic immortality, based on our role in the larger cultural story (Pyszczynski et al., 1999; Solomon et al., 1998). These defenses are experiential, and are not related to the problem of death in any semantic or logical way, and are increasingly activated as the accessibility of death-related thoughts increases—up to the point at which such thoughts enter consciousness and proximal threat-focused defenses are initiated (Pyszczynski et al., 1999).

These two terror management defenses - world view defense and self-esteem - have been conceptualized in a dual process model as distal defenses. That is, in the dual process model, proximal and distal defenses are activated in a temporal sequence (Pyszczynski et al., 1999). First, proximal defenses—which entail suppressing death-related thoughts or pushing the problem of death into the distant future by denying one's vulnerability—are activated when thoughts of death are in current focal attention. This initial and direct form of defense focuses on conscious death concerns in an effort to remove them from awareness. This may be achieved by actively suppressing death concerns (Arndt et al., 1997), distracting

oneself (Greenberg et al., 1994), shifting to an external focus of attention, avoiding self-reflective thought (Arndt et al., 1998), or biasing inferential processes to deny one's vulnerability (Greenberg et al., 2000).

The second line of defense, the distal defenses, comes into play only after people are distracted from death-related thoughts; the thoughts begin to resurface, but remain outside of focal attention (Arndt et al., 1997; Greenberg et al., 2000). At this point, people become motivated to go to incredible lengths to maintain and defend their cultural views, while self-esteem has been one of the more important moderators in typical terror management effects (Harmon-Jones et al., 1997).

Two hypotheses have emerged from TMT research: the mortality salience hypothesis and the anxiety-buffer hypothesis. The mortality salience hypothesis says that, if cultural worldviews and self-esteem provide protection from the fear of death, then reminding people of the root of that fear will increase the needs of individuals to value their own cultural worldview and self-esteem. Meanwhile, the anxiety-buffer hypothesis provides the rationale that, if self-esteem is a buffer that serves to insulate humans from death, by doing so, our self-esteem allows us to deny the susceptibility to a short-term life. Reminders of death increase nationalism and other forms of group identification, making people more accepting of those who are similar to themselves and more hostile toward those who are different. Mortality salience, especially in homogeneous cultures, which do not favor diversity, may lead to hostile reactions toward "outsiders," members of other cultures who might present a threat to the individuals' self-esteem. Under such conditions, hostility towards foreigners might increase proportionately with the anxiety arising from confronting death.

TMT and Cancer

Learning that one might have cancer can evoke negative emotions, including fear, because cancer is also associated with a death sentence (Cameron, 1997). When facing the inevitability of one's own death—whether as an immediate reality or as an imagined, distant eventuality—such ontological confrontation can lead to cognitive reactions and various emotional responses that can have positive effects (e.g., risk avoidance behaviors) or negative effects (e.g., flight-freeze or risk increasing behavior).

According to TMT, this existential fear experienced when cancer is primed in a person to be screened for cancer, will result in persons defending their cultural worldview (Greenberg et al., 1990). Culture diminishes this psychological terror by providing meaning, organization, and continuity to people's lives. Effects on a person's worldview can be assumed, whereby compliance with cultural values will enhance one's feeling of security and self-esteem—provided that the individual is capable of living in accordance with whatever particular cultural standards apply to him or her. Effects of a person's self-esteem can also be assumed, whereby self-esteem defuses the defensive effects that occur when the person is reminded of

his or her mortality as part of the system we use to protect ourselves from death-related fear. Higher self-esteem makes people less prone to anxiety and anxiety-related behavior and less likely to have death-related thoughts come close to consciousness.
According to the mortality salience hypothesis, if cultural worldviews and self-esteem provide protection from the fear of death, then reminding people of cancer will increase the need of these individuals to value their own cultural worldview. Meanwhile, according to the anxiety-buffer hypothesis, self-esteem will act as a buffer serving to insulate the person from death and allowing for denial of susceptibility to a short-term life. These TMT hypotheses serve as the basis for the hypotheses of the current study.

Hypotheses

The primary difference between the VIA and the Pap procedure when it comes to fear is that in the VIA procedure women will immediately get the screening result while in the Pap procedure women will get the screening result weeks later. In the waiting room, women are informed about the procedure they will be in. We assume that anticipating a screening result reminds women of their mortality because one possible outcome of the screening is that they have cervix cancer or are at risk for it. Because women in the VIA procedure are informed that they will receive the screening result immediately, they will be reminded of death more strongly compared to women in the waiting room who know that they will get the screening result in weeks (Pap procedure). Therefore, it can be expected that they will display stronger psychological reactions to get rid of their death thoughts.
Women in the waiting room know in advance, before they arrive, that they will be screened on cervix cancer and, therefore, we expect that they will primarily use distal defenses. That is, the proximal reaction to mortality salience is that of suppression that attempts simply to block all death thoughts. However, after a while this reaction is no longer effective and other, more distal defenses are used. We expect that the difference in mortaility salience between women in both screening procedures, will manifest in the level of fear. When in the high mortality salience condition fear is low, we assume that this is caused by the activation of distal defenses.
Hypothesis 1: Self-esteem will show its buffering function on the level of fear, especially when mortality salience is high (VIA procedure).
Hypothesis 2: World View Defense is used to lower the fear, especially when mortality salience is high (VIA procedure).

Methods

Participants

The study population consisted of 247 women who visited the Stichting Lobi polyclinic in Paramaribo, Suriname, in the months from September through December 2007 in order to be screened for cervical cancer.

Data collection and procedures

All participants completed a questionnaire twice, in a pre- posttest procedure, in the waiting room, while waiting to be screened. Between the pre and posttest, the women were informed through a leaflet about one of the two methods of screening for cervical cancer-either the VIA methodology or the Pap smear methodology (see appendix). The essential difference between the two methodologies is the time the participants have to wait before receiving the results; whether there are abnormalities, or even (pre) cancerous developments in the cervix. The women in the VIA condition were informed that they would receive the results immediately while the women in the Pap smear condition were informed that they had to wait four to six weeks for the results. The remainder of the leaflet was the same, except, of course, for the explanation of the technical procedure. After providing each group this specific information about the instant or delayed screening results, the immediate posttest was carried out.

Pre- and posttest measurements

Data were gathered through self-reports. A questionnaire was administered (see appendix) including different chapter of questions. Below, only the question, will be presented that are used in the present analyses.
At the pretest several socio-demographic variables were assessed (see Table 4.1). Furthermore, self-esteem was assessed using the 10-item Rosenberg scale (Rosenberg, 1965).
At the posttest, the first question was whether they remembered what the term was on which they would get the results of the screening (immediate/after 4 to 6 weeks/I don't know). The primary outcome measure was fear for the screening result, which was assessed by two questions: "Do you worry about the screening result", and "How much do you not look forward to hearing the screening result?". Both scores were averaged and used as the individual's fear score. In addition, world view defense was assessed using three pairs of items from which the difference scores were used as the dependent variable. Participants were asked on 7-point scales to what extent they found Surinamese (the own culture) and Americans (the other's culture) were honest, friendly and violent.

Table 4.1 Respondents by religion, age, formal education, place of residence.

N=247	%
Total number of participants	100.0
Distribution by ethnic origin	
Hindustani	22.2
Creole	26.8
Javanese	17.1
Maroon	11.3
Chinese	1.2
Amerindian	1.9
Caucasian	0.4
Mixed	17.1
Other	2.0
Distribution by religion	
Christian	33.1
Catholic	24.9
Hindu	16.3
Muslim	14.0
Non religious/Not known	11.7
Distribution by formal education	
Primary education incomplete	2.7
Primary education complete	6.2
Secondary education incomplete	34.6
Secondary education complete	44.8
High school or more	9.8
Not known	1.9
Distribution by place of residence	
Paramaribo	66.9
Wanica	16.3
Other	16.8

Results

Characteristics of the women

As shown in Table 4.1, almost half of the women have a Hindustani or Creole background and over half of them report Christianity or Catholicism as their religion. The majority have a completed secondary education. More than three quarters have an incomplete or completed secondary education. Because the sample was taken in the policlinic of Stichting lobi in Paramaribo, the majority of the respondents were from Paramaribo.

Manipulation and randomization check

The first posttest question was used to check the manipulation. The data showed (Table 4.2) that of the 247 women, 19 did not remember the term on which they would receive the result of the cancer screening. Of the 122 women in the VIA

condition, 15 mistakenly thought that they would receive the result in 4 to 6 weeks while in the PAP condition 35 mistakenly thought that they would receive the result immediately. It was concluded that in these women the main manipulation was not successful and therefore they were removed from further analyses, leaving 96 women in the VIA condition and 82 in the PAP condition. A randomization check revealed that women in the PAP condition were significantly older than the women in the VIA condition (M=40; SD=10 and M=30; SD=8.01, respectively). It seemed that the randomization was not completely successful; older women were more often offered the PAP condition leaflet. Therefore, all statistical analyses were controlled for age.

Table 4.2 Manipulation check.

Folder	When do you get the result?			Total
	Directly	4-6 wks	Don't know	
VIA	**96**	15	11	122
Pap Smear	35	**82**	8	125
Total	131	97	19	247

Effects of condition on fear of the results

The primary hypothesis was that the effects of condition on fear were moderated by self-esteem. Using an ANCOVA, the interaction between condition and self-esteem was significant, $F(1, 159)=11.88$, $p<0.001$. To investigate the meaning of the interaction, the data were used to model women with a low self-esteem and women with a high self-esteem, by subtracting and summing the standardized self-esteem scores with 1 standard deviation, respectively (Cohen, Cohen, West & Aiken, 2003).

The pattern of scores on fear is depicted in Figure 4.1. When self-esteem was low, the effect of condition was significant, $F(1,159)=4.97$, $p<0.05$, with the VIA condition leading to more fear (M=4.74) than the PAP condition (M=3.65). When self-esteem was high, the effect of condition was significant, $F(1,159)=5.41$, $p<0.05$, with the VIA condition leading to less fear (M=2.07) than the PAP condition (M=3.03). In addition, the relation between self-esteem and fear was assessed in both conditions. In the VIA condition the Pearson correlation was negative and significant, $(85)=-0.58$, $p<0.001$: Higher self-esteem was associated with less fear. In the PAP condition the correlation was not significant.

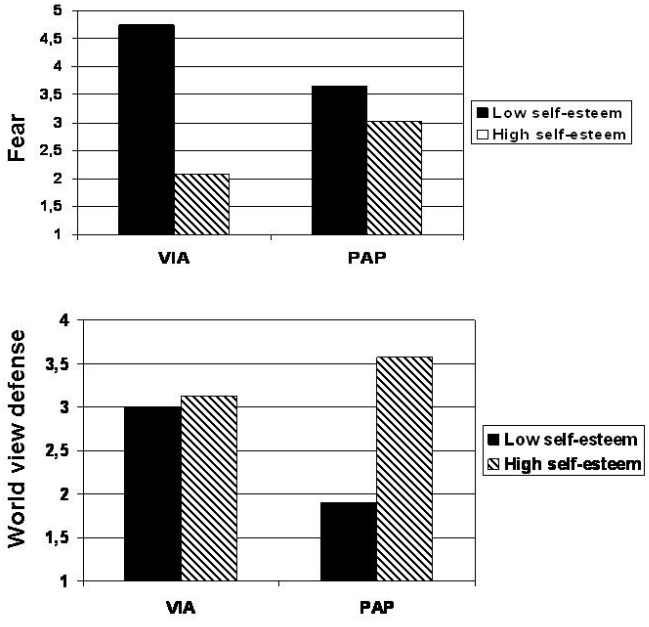

Figure 4.1 Self esteem, fear and worldview defense.

Effects of condition on world view defense

It was hypothesized that the need for world view defense induced by the conditions would also depend on self-esteem. Therefore, the interaction between self-esteem and condition on world view defense was tested in an ANCOVA. Three measures of world view defense were used; the difference scores between Surinamese and Americans on each of the three evaluation dimensions; dishonesty, unfriendliness and being violent. However, none of these three measures were related to the conditions. Therefore, in subsequent analyses the three scores on the evaluations of only Americans were tested. The higher the score, the more the other culture is derogated, the stronger the world view defense. Only for the single item of Americans being violent, the interaction between self-esteem and condition was significant, $F(1,151)=6.12$, $p<0.05$. To investigate the meaning of the interaction, the same procedure to form low and high self-esteem groups was used as outlined above.

The pattern of scores on world view defense is depicted in Figure 4.1. When self-esteem was low, the effect of condition was significant, $F(1,153)=4.56$, $p<0.05$, with the PAP condition leading to less world view defense ($M=1.9$) than the VIA condition ($M=2.99$). When self-esteem was high, the effect of condition was not significant. In addition, the relation between self-esteem and world view defense

was assessed in both conditions. In the VIA condition the Pearson correlation was not significant. In the PAP condition the correlation was positive and significant, $r(65)=0.42$, $p<0.05$: Higher self-esteem was associated with stronger world view defense.

Discussion

The goal of this study was to study fear in women waiting for a cervix cancer screening procedure. It was expected that the VIA condition would lead to a stronger mortality salience and that this might be manifested in levels of fear and the use of distal defense mechanisms.

With regard to fear, the results show that only in the VIA condition, when mortality salience was high, self-esteem acted as a buffer to lower the threat; women with high self-esteem reported the least fear. The finding that this buffering effect was not present in the PAP condition, suggests that in the PAP condition, the self-esteem-related mechanisms that are responsible for the buffering effect were not activated. This suggests that mortality salience must pass a threshold to activate the buffering effect of self-esteem. That is, in the PAP condition the threat may not have been sufficiently high to activate self-regulatory action to lower it. Thus, with regard to self-esteem as a way to cope with mortality salience, the result were meaningful.

With regard to world view defense the results were less straight forward. It was expected that mortality salience would lead to defending the own culture or derogating another culture. It was also expected that in this process, women with high self-esteem would be the least inclined to derogate Americans because they have their self-esteem buffer, while low self-esteem women have more need to hold off death thoughts in all available ways.

World view defense was tested using difference scores on the three evaluation dimensions. However, none of these measures was related to condition. Only the single item regarding the extent to which Americans were seen as violent was related to condition. In the PAP condition, the lowest level of WVD was displayed by women with low self-esteem. Thus, they were the least inclined to derogate Americans. In the Pap condition, higher self-esteem was even related to more WVD. In the VIA condition, self-esteem was not at all related to WVD. To understand this we need another perspective. First of all, the mean evaluation of Americans on the 7-point scale from peaceful to violent was between 2 and 3.5. Thus, overall, Americans were not evaluated very negatively. In addition, the mean evaluation in the low self-esteem women in the Pap condition was lower then 2. It might be that they were actively more positive about the Americans. How could this be explained? One possibility is that the Americans were not so much seen as “another”, contrasting culture. The Surinamese culture is very much influenced by

the American culture, through their music and film industry. TV productions showing the American culture are daily aired in Suriname; the most recent family productions, talk shows, sports happenings, and news. It may be that because of this, Suriname women identify with the American culture. This would mean that especially low self-esteem women tried to lower their mortality salience by identifying with a powerful culture, the American culture. High self-esteem women did not need to identify more strongly because they have their self-esteem resources to buffer the threat. Although our findings are opposite of the expected, the identification with a more powerful culture or group after being reminder of one's mortality has been found in a TMT study of Renkema and Stapel (2009). This means that not the mechanism of world view defense was active but a mechanism of identification. This process may serve both defense mechanisms: Identification with a powerful culture or group may boost self-esteem but also provide a cultural world view.

In the VIA condition, self-esteem was not related to identification, despite our assumption that the mortality salience in this condition was higher. Especially people with low self-esteem may no longer have used identification to cope with the threat or this defense mechanism just failed. It is even possible that the women in the VIA condition changed their defense strategy to the originally expected world view defense: derogating others. Future studies should look at these effects of different levels of threat or mortality salience more closely.

The Terror management Theory was applied in the polyclinic reality. Therefore, there are some essential difference between earlier studies on TMT and the present study. Firstly, most studies have used imagination as manipulation for fear. It can be asssumed that the threat imagination in the present study had already taken place while the women were traveling to the polyclininc to be examined. In addition, the context of a waiting room, real screening and a real possibility to be diagnosed with a potentially lethal disease, may make the present experiment qualitatively and quantitatively different from many laboratory studies. Secondly, while most laboratory studies use one mortality salience manipulation, we compared two levels of threat. This simple dose-response design makes it possible to detect different self-regulatory action at different levels of threat. Thirdly, our manipulation of mortality salience was related to the term on which women would receive the possibly bad news associates with death (a positive screening result). To the extent that the differences in the term led to differences in the ease of imagination of receiving such a result, the manipulations may have led to differences in salience of mortality. In conclusion, applying TMT in a realistic context provides new angles and challlenges to test the theory and to understand psychological reactions in that context.

In the study presented in the former chapter, it was shown that women who chose not to participate at all in the screening for cervical cancer, had significantly higher fear intensities compared to participants of the screening campaign. Especially, the

number of women reporting substantial fear was higher. It seems that because proximal nor distal defense mechanisms could cushion the experienced strong negative emotion, they were unable to buffer the experienced high fear and were therefore incapable to exhibit positive health seeking behavior.

One way of reasoning can follow the so-called U- shaped response of self-protective behaviors theory, proposed by Janis (1967). The actual waiting to be examined for cervical cancer and the crude fact that in a few moments the woman will know if she is developing cervical cancer, might be a particular circumstance in which, according to Rothman, U- shaped response of self-protective behaviors occur (Rothman et al. 1997): Low levels of fear intensity do not lead to action, moderate levels produces self-protective behavior, and high levels can result in counterproductive defensive responses. In sum, while a lack of activation or effectiveness of proximal and distal defense mechanisms may lead to high fear, the high fear may hinder engagement in self-protective behaviour.

In designing programs to educate and motivate persons to participate in a preventive cancer screening program, due account should be given to fear intensity among the target groups. One angle to designing these programs is to test the effects of positive versus negative framing (Rothman, et al., 1997). It might be that for women with high fear, the positive frame may more appealing because it is less theatening. Another angle to designing these programs is that of tailoring the information. Tailoring information to individuals' characteristics is an accepted method of health education in early detection of *cancer* (Nooijer et al., 2002). The use of tailored information, to educate and motivate persons to participate in a preventive cancer screening program, compared to general information, is more appreciated by recipients. Tailored information resulted significantly more often in changes in attitudes and behavior after the intervention (Nooijer et al., 2002). Some messages conveying identical information seemed to work better with others, and some even appeared to backfire. Tailored information could take into account the individual women's level of fear or her self-esteem. Future studies will further have to test these assumptions. The fundamental question is whether a given fear appeal triggers additional vigilance and danger control through prevention, or instead promotes inattention and avoidance as fear control mechanisms (Witte 1992, 1998).

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Appendix

Screening-onderzoek
Rijksuniversiteit Groningen

Het invullen van de vragenlijst duurt ongeveer tien minuten en bestaat uit 43 vragen. Na deel E volgt een folder die u eerst moet lezen, alvorens u de laatste vragen beantwoordt. Sommige vragen zijn moeilijk en soms lijken de vragen op elkaar. Toch willen wij u vragen **alle vragen in te vullen.** Er zijn geen goede of foute antwoorden, we zijn vooral geïnteresseerd in uw mening. Voor het onderzoek is het beste dat u de vragen zo eerlijk mogelijk beantwoord. Alle gegevens zullen **strikt vertrouwelijk en anoniem** worden behandeld.

U kunt vrijwel alle vragen beantwoorden door een vakje aan te kruisen. Bij iedere vraag niet meer dan één vakje aankruisen. Hieronder staan **twee voorbeelden** over hoe de vragen beantwoord kunnen worden.

VOORBEELD 1

Als u 33 jaar bent vult u dat op deze manier in. →

Wat is uw leeftijd?
.....*33*..... jaar

VOORBEELD 2

Als u er helemaal geen behoefte aan hebt kruist u een 1 aan. Heeft u er juist wel veel behoefte aan , dan kruist u een 7 aan. Als u een beetje behoefte heeft dan kruist u bijv. een 2 of 3 aan, etc.

Hebt u behoefte om over de screening te praten?

Helemaal geen behoefte						Heel veel behoefte
1	2	3	4	5	6	7
[0]	[0]	[0]	[0]	[0]	[0]	[0]

Deel A

1. Leeftijd:

.....jaar

2. Bevolkingsgroep:

[0] Hindoestaan
[0] Javaan
[0] Creool
[0] Bosland Creool
[0] Chinees
[0] Gemengd (mix)
[0] Indiaan
[0] Kaukasiër (blanke ras)
[0] Anders, namelijk .....

3. Opleiding:

[0] Geen of GLO, niet afgerond
[0] GLO, afgerond (zes jaren)
[0] VOJ (MULO/LBGO), afgerond
[0] VOJ (MULO/LBGO), niet afgerond
[0] VOS (Middelbare school opleiding), afgerond
[0] VOS (Middelbare school opleiding), niet afgerond
[0] HBO opleiding, afgerond
[0] Afgestudeerd Universiteit (Master of Doctoraal graad)

4. Bent u religieus? Zo ja, wat is uw religie?

[0] Niet religieus
[0] Hindoe
[0] Katholiek
[0] Moslim
[0] Christen (niet katholiek)
[0] Anders, namelijk .....

5. Waar woont u? (woonplaats)

[0] Paramaribo Plaats:
[0] Wanica Plaats:
[0] Nickerie Plaats:
[0] Coronie Plaats:
[0] Saramacca Plaats:
[0] Commewijne Plaats:
[0] Marowijne Plaats:
[0] Brokopondo Plaats:
[0] Para Plaats:
[0] Sipaliwini Plaats:
[0] Onbekend Plaats:

Deel B

1. Hebt u eerder een baarmoederhalskanker screening ondergaan?

[0] Nee
[0] Ja, een keer
[0] Ja, vaker

2. Hebt u ooit een afwijkende uitslag gehad?

[0] Nee
[0] Ja
[0] Weet niet

3. Bent u n.a.v. de uitslag verwezen naar een specialist?

[0] Nee
[0] Ja
[0] Weet niet

4. Bent u, als u verwezen was, aan uw baarmoeder geopereerd?

[0] Nee
[0] Ja
[0] Weet niet

5. Heeft iemand die u kent, baarmoederhalskanker gehad?

[0] Nee
[0] Ja
[0] Weet niet

6. Hebt u behoefte aan informatie over het onderzoek naar het lichamelijke onderzoek naar baarmoederhalskanker zo meteen?

Helemaal geen behoefte						Heel veel behoefte
1	2	3	4	5	6	7
[0]	[0]	[0]	[0]	[0]	[0]	[0]

Deel C

1. Denkt u dat u risico loopt op baarmoederhalskanker?

Heel erg klein						Heel erg groot
1	2	3	4	5	6	7
[0]	[0]	[0]	[0]	[0]	[0]	[0]

2. Hoe groot is het risico dat u loopt op baarmoederhalskanker in procenten?
.....%

3. Hoe goed denkt u dat baarmoederhalskanker behandelbaar is?

Helemaal niet be-handelbaar						Heel goed be-handelbaar
1	2	3	4	5	6	7
[0]	[0]	[0]	[0]	[0]	[0]	[0]

4. Hoe ernstig denkt u dat baarmoederhalskanker is?

Helemaal niet ernstig						Heel ernstig
1	2	3	4	5	6	7
[0]	[0]	[0]	[0]	[0]	[0]	[0]

5. Kijkt u tegen de uitslag van het baarmoederhalskankeronderzoek op?

Helemaal niet						Heel erg
1	2	3	4	5	6	7
[0]	[0]	[0]	[0]	[0]	[0]	[0]

Deel D

De volgende zes vragen gaan over uw gedachten.

Hoe vaak gebeurt het volgende gedurende afgelopen vier weken:	Nooit	Soms	Regel-matig	Vaak	Heel vaak
1. Ik merk dat ik sommige dingen heel goed heb gedaan.	[0]	[0]	[0]	[0]	[0]
2. Als ik me slecht voel over mezelf denk ik aan de dingen die ik wel goed doe.	[0]	[0]	[0]	[0]	[0]
3. Ik denk aan dingen in het verleden die ik goed heb gedaan.	[0]	[0]	[0]	[0]	[0]
4. Ik denk aan de dingen die ik goed voor elkaar heb.	[0]	[0]	[0]	[0]	[0]
5. Als ik iets heb gedaan waardoor ik ontevreden ben zeg ik tegen mijzelf dat ik niet alles verkeerd doe.	[0]	[0]	[0]	[0]	[0]
6. Ik besef dat ik naast de ‘domme’ dingen die ik doe, ook een aantal dingen heel goed doe.	[0]	[0]	[0]	[0]	[0]

Deel E

Hierna volgt een aantal vragen die gaan over de manier waarop u tegen uzelf aankijkt. De vragen zijn uitspraken waar u het meer of minder mee eens kunt zijn. Het gaat er in deze vragen dus niet om wat andere mensen van u vinden, maar uitsluitend hoe u tegen uzelf aankijkt.

		Sterk mee ONeens	Gedeelte-lijk mee ONeens	Niet ONeens /niet eens	Gedeelte-lijk mee eens	Sterk mee eens
1.	Over het geheel genomen ben ik best tevreden met mijzelf.	[0]	[0]	[0]	[0]	[0]
2.	Soms heb ik het gevoel dat ik nergens voor deug.	[0]	[0]	[0]	[0]	[0]
3.	Ik vind dat ik goede eigenschappen bezit.	[0]	[0]	[0]	[0]	[0]
4.	Ik kan allerlei dingen even goed als de meeste andere mensen.	[0]	[0]	[0]	[0]	[0]
5.	Ik vind dat ik weinig reden heb om trots op mijzelf te zijn.	[0]	[0]	[0]	[0]	[0]
6.	Ik voel me af en toe echt nutteloos.	[0]	[0]	[0]	[0]	[0]
7.	Ik vind dat ik in verge-lijking met anderen een waardevol persoon ben.	[0]	[0]	[0]	[0]	[0]
8.	Ik zou willen dat ik wat meer respect voor mijzelf zou kunnen opbrengen.	[0]	[0]	[0]	[0]	[0]
9.	Al met al kan ik niet anders dan mijzelf als een mislukkeling zien.	[0]	[0]	[0]	[0]	[0]
10.	Ik sta positief tegenover mijzelf.	[0]	[0]	[0]	[0]	[0]

Deel F

1. Hebt u onthouden wanneer u de uitslag krijgt? (dit staat in de gele folder aangegeven, maar u mag niet terugbladeren)

[0] Ja, direct
[0] Ja, na 6 weken
[0] Nee, ik weet het niet meer

2. Hoe groot is volgens u de kans dat u baarmoederhalskanker heeft in vergelijking met andere vrouwen van u leeftijd?

Ver onder gemiddeld			Gemiddeld			Ver boven gemiddeld
1	2	3	4	5	6	7
[0]	[0]	[0]	[0]	[0]	[0]	[0]

3. Hoe bang bent u dat u baarmoederhalskanker heeft?

Helemaal niet bang						Heel erg bang
1	2	3	4	5	6	7
[0]	[0]	[0]	[0]	[0]	[0]	[0]

4. Maakt u zich zorgen over de uitslag van het onderzoek?

Helemaal niet						Heel erg
1	2	3	4	5	6	7
[0]	[0]	[0]	[0]	[0]	[0]	[0]

5. Hoe erg kijkt u ertegen op om de uitslag te horen te krijgen?

Helemaal niet						Heel erg
1	2	3	4	5	6	7
[0]	[0]	[0]	[0]	[0]	[0]	[0]

Deel G

Deze vragen zijn anders dan de andere vragen, maar voor het onderzoek is het ook van belang deze vragen te stellen.

1. Ik vind Surinamers ...

Eerlijk						Oneerlijk
1	2	3	4	5	6	7
[0]	[0]	[0]	[0]	[0]	[0]	[0]

2. Ik vind Surinamers ...

Vriendelijk						Onvriendelijk
1	2	3	4	5	6	7
[0]	[0]	[0]	[0]	[0]	[0]	[0]

3. Ik vind Surinamers ...

Vredelievend						Gewelddadig
1	2	3	4	5	6	7
[0]	[0]	[0]	[0]	[0]	[0]	[0]

4. Ik vind Amerikanen ...

Eerlijk						Oneerlijk
1	2	3	4	5	6	7
[0]	[0]	[0]	[0]	[0]	[0]	[0]

5. Ik vind Amerikanen ...

Vriendelijk						Onvriendelijk
1	2	3	4	5	6	7
[0]	[0]	[0]	[0]	[0]	[0]	[0]

6. Ik vind Amerikanen ...

Vredelievend						Gewelddadig
	2	3	4	5	6	7
	[0]	[0]	[0]	[0]	[0]	[0]

Dit is het einde van de vragenlijst. Hartelijk dank voor uw medewerking! Als u nog opmerkingen heeft, kunt u deze hieronder kwijt.

Wanneer krijg je de uitslag ?
Bij het uitstrijkje is er een periode van 4 tot 6 weken tussen het onderzoek en de uitslag. De vrouw moet dus wachten op de uitslag. Als de uitslag eenmaal binnen is kan besproken worden of en welke behandeling nodig is. Voor behandeling moet de vrouw dan terug.

Hoe betrouwbaar is het onderzoeksresultaat?
De uitslag van het uitstrijkje is heel betrouwbaar. Bij regelmatig herhalingsonderzoek is er voldoende garantie dat eventuele afwijkingen tijdig worden opgespoord.

Hoe vaak moet het uitstrijkje worden gedaan?
Geadviseerd wordt om herhaling(sonderzoek) van het uitstrijkje na 6, 12 of 24 maanden te laten doen, afhankelijk van de uitslag.

Wat als het onderzoeksresultaat niet goed is?
Als uit het uitstrijkje blijkt dat er afwijkingen zijn, zal de dokter/verpleegkundige uitleggen welke behandeling mogelijk is. De behandeling kan cryotherapie zijn. Bij cryotherapie zal de dokter de baarmoedermond met vloeibare stikstof of koolzuurgas "bevriezen". Een andere mogelijkheid is verwijzing naar de gynaecoloog die een stukje weefsel van de baarmoedermond voor onderzoek naar het laboratorium stuurt. De uitslag daarvan bepaalt de aard van eventuele verdere behandeling. Bv. operatie. Behandeling met cryotherapie is bij Lobi mogelijk.

KOSTEN VAN EEN UITSTRIJKJE:
Particulieren betalen voor een uitstrijkje SRD 40,- per keer.
Assuria en Self Reliance vergoeden de kosten van een uitstrijkje.
Ook het **SZF en Ministerie van SoZaVo** vergoeden de kosten van het uitstrijkje.

Vrouwen met ongewone buikpijn en/of abnormaal bloedverlies kunnen na consultatie bij de verpleegkundige of arts advies krijgen over de meest geschikte onderzoeksmethode. Voor vrouwen met deze klachten is vaak nog ander onderzoek nodig.

Voor meer info bij Stichting Lobi:
Paramaribo, telefoon 400444/400974
Nw. Nickerie, telefoon 0231533
Moengo, telefoon 0341155
Lelydorp, telefoon 0367227

September 2007

STICHTING LOBI

cervix screening

Het uitstrijkje

Preventie van en onderzoek naar baarmoederhalskanker

Baarmoederhalskanker is te voorkomen. Onderzoek kan helpen te ontdekken of er veranderingen of afwijkingen in de baarmoederhals zijn die tot baarmoeder halskanker kunnen leiden. Hierdoor kunnen voorstadia van kanker op tijd worden ontdekt.
Deze afwijkingen kunnen voor 100% genezen als er tijdig behandeld wordt.

Onderzoek naar baarmoederhalskanker wordt ook cervix screening genoemd.

Wie moeten cervix screening laten doen?
- vrouwen die al seks hebben gehad en die ouder zijn dan 25 jaar
- vrouwen die nog nooit een onderzoek hebben laten doen, zeker als ze boven 30 jaar zijn en seksueel actief zijn (geweest)

Vrouwen van wie de baarmoeder is verwijderd hoeven géén cervix screening meer te doen.

Er zijn nu twee screenings-methoden voor baarmoederhalskankeronderzoek bij Lobi mogelijk.

1. Uitstrijkje ofwel de papsmear
2. VIA (Visual Inspection with Acetic Acid)

HET UITSTRIJKJE:

Wat gebeurt er bij het uitstrijkje?
Bij het uitstrijkje neemt een (getrainde) verpleegkundige of dokter met een houten spatel of met een plastic borsteltje wat slijmvlies van de baarmoederhals. Dit materiaal wordt op een glaasje uitgestreken en voor onderzoek naar het laboratorium gestuurd.

De informatie in beeld:

Het speculum, ook wel eendebek genoemd

Bij het onderzoek wordt het speculum ingebracht, zodat de baarmoedermond goed te zien is.

Bij het uitstrijkje wordt met spatel of borsteltje wat slijmvlies afgenomen bij de baarmoedermond.

Wat laat het uitstrijkje zien?
Bij een uitstrijkje wordt dus bij de vrouw wat slijmvlies van de baarmoedermond afgenomen en op een glaasje uitgestreken. Dit gaat naar het laboratorium er wordt onder een microscoop onderzocht. Men kan dan zien of er afwijkende celgroei is.

Is het uitstrijkje pijnlijk?
Nee, het uitstrijkje is niet pijnlijk. Het inbrengen van het speculum –ook wel eendebek genoemd- kan als je te gespannen bent wat gevoelig zijn. Het onderzoek zal ook iets pijnlijker zijn als er al een bestaande pijnlijke aandoening is. Misschien kriebelt of prikkelt het bij de baarmoedermond een beetje bij het afnemen van het slijmvlies.

Wanneer is de beste tijd om een uitstrijkje te laten doen?
De vrouw moet niet menstrueren op het moment dat het uitstrijkje wordt gemaakt. Twee weken nadat de menstruatie is gestopt, is de beste tijd om het onderzoek te doen. Verder moet de vrouw geen vaginale medicatie gebruiken in de periode van het onderzoek.

Wanneer krijg je de uitslag ?
Bij de methode VIA kan er meteen gezien worden of er een afwijking is en kan de uitslag aan de vrouw worden doorgegeven. Men kan ook meteen behandelen en hoeft de vrouw voor de behandeling niet terug te komen.

Hoe betrouwbaar is het onderzoeks-resultaat?
De betrouwbaarheid van VIA is hoog; 70-80% van de afwijkingen worden bij het eerste onderzoek ontdekt. Bij regelmatige (jaarlijkse) controle is er voldoende garantie dat eventuele afwijkingen tijdig worden opgespoord.

Hoe vaak moet VIA-onderzoek worden gedaan?
Stichting Lobi adviseert om het onderzoek door middel van VIA eenmaal per jaar te doen.

Wat als het onderzoeksresultaat niet goed is?
Bij VIA onderzoek is het mogelijk meteen tot behandeling over te gaan. Als het onderzoek uitwijst dat er afwijkingen zijn, zal de dokter/verpleegkundige uitleggen welke behandeling mogelijk is. In vele gevallen zal de behandeling cryotherapie zijn.
Bij cryotherapie zal de dokter de baarmoedermond met vloeibare stikstof of koolzuurgas "bevriezen". Behandeling met cryotherapie is bij Lobi meteen mogelijk.

KOSTEN VAN VIA-ONDERZOEK:
Voor VIA betaalt men particulier SRD 45,-
(dit is inclusief eventuele cryotherapie).
Assuria en Self Reliance vergoeden de kosten van VIA.
Bij het **SZF en Ministerie van SoZaVo** (nog) niet.

Vrouwen met ongewone buikpijn en/of abnormaal bloedverlies kunnen na consultatie bij de verpleegkundige of arts advies krijgen over de meest geschikte onderzoeksmethode. Voor vrouwen met deze klachten is vaak nog ander onderzoek nodig.

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September 2007

STICHTING LOBI

cervix screening

Via-methode

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Er zijn nu twee screenings-methoden voor baarmoederhalskankeronderzoek bij Lobi mogelijk.

1. Uitstrijkje ofwel de papsmear
2. VIA (Visual Inspection with Acetic Acid)

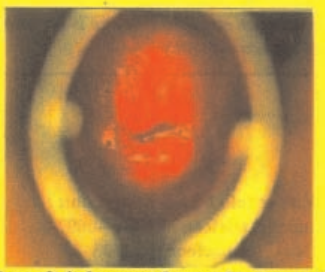
DE VIA-METHODE:

Wat gebeurt er bij de VIA-methode?
Bij VIA wordt door een (getrainde) verpleegkundige of dokter, de baarmoedermond nat gemaakt met behulp van een watje met een verdunde azijnzuuroplossing en na 1 minuut met het blote oog bekeken en beoordeeld.

De informatie in beeld:

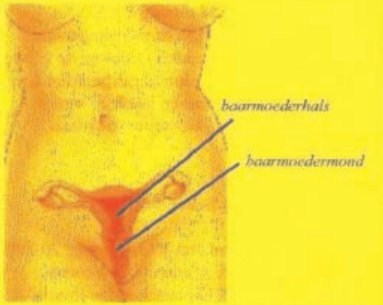
Het speculum, ook wel eendebek genoemd

Bij het onderzoek wordt het speculum ingebracht, zodat de baarmoedermond goed te zien is.



Bij VIA wordt de baarmoedermond met een azijnzuuroplossing natgemaakt en daarna met het blote oog bekeken.

Wat laat VIA-onderzoek zien?
Bij VIA wordt dus de baarmoedermond natgemaakt met een azijnzuur oplossing en na 1 minuut met het blote oog bekeken. De methode is gebaseerd op de eigenschap dat abnormaal weefsel van kleur verandert als het in contact wordt gebracht met azijnzuur. Dat is dus met het blote oog te zien.



Is VIA-onderzoek pijnlijk?
Nee, VIA-onderzoek is niet pijnlijk. Het inbrengen van het speculum –ook wel eendebek genoemd- kan als je te gespannen bent wat gevoelig zijn. Het onderzoek zal ook iets pijnlijker zijn als er al een bestaande pijnlijke aandoening is. Misschien kan er bij het natmaken van de baarmoedermond even een branderig gevoel zijn.

Wanneer is de beste tijd om VIA-onderzoek te doen?
De vrouw moet niet menstrueren op het moment dat VIA-onderzoek wordt gedaan. Twee weken nadat de menstruatie is gestopt, is de beste tijd om het onderzoek te doen. Verder moet de vrouw geen vaginale medicatie gebruiken in de periode van het onderzoek.

Chapter 5

Overall Discussion

Overall Discussion

Proxies for HPV exposure

Proxies were found for the exposure of Surinamese women to HPV. Firstly women's level of education is related to cervical cancer showing a correlation between lower levels of education and higher prevalence of cervical cancer. The culture of women with a lower level of education seems to support identified high-risk behaviors for cervical cancer, such as, early sexual intercourse early in life, particularly under the age of 12, and high parity, increasing the chance of developing cervical cancer. The relationship between Pap smear results and proxies for early exposure to HPV and the relationship between Pap smear results and education might be confounded by culture: Culture might be the underlying factor that explains both relationships. A culture which promotes formal education for women may better promote risk avoidance behaviors regarding HPV infection. A significant difference emerged with regard to Pap smear results and ethnicity. Maroon and Creole women have significantly more positive results than other ethnic groups probably due to their specific culture, which has a higher occurrence of high-risk behaviors. The average age of first intercourse is very young, and they have more children; both variables are significantly correlated with positive Pap smear results. Maroon women's hygienic practices and mourning customs also seem to increase their susceptibility to cervical cancer.
Based on the findings in this study, a need exists for follow-up research, particularly in regards to cultural characteristics that promote risk increasing and risk avoidance behavior, for example, the excessive drying of the vaginas as a specific hygiene practice, and having unprotected sexual intercourse as a purification ritual at the end of a mourning period.

Prevention of cervix cancer

Cervical cancer is a preventable disease and morbidity and mortality can be reduced through primary and secondary prevention strategies. The findings of this study can be used to design primary (preventing the initial occurrence) and secondary prevention (hinder the development) programs to prevent this malignancy. The first strategy to fight the incidence of cervical cancer is to educate people about relevant behaviors. The culture, lifestyle of the woman and her partner(s) is of utmost importance and men and women need to be made aware of the relationship between their lifestyle, including their risk increasing and risk avoidance behavior in relation to HPV infections and cervical cancer.
The second strategy to fight the incidence of cervical cancer is to vaccinate young women. It looks promising that 94,1% of the users of reproductive health services at Lobi do not mind to have their daughters' vaccinated, but this is a group of women, well aware of reproductive health issues, and practicing responsible sexual

and reproductive health behavior. The point of view of the general public with regard to vaccination is not yet assessed. This is of high importance because the impact of a vaccination program on the population's health is also determined by the process of overcoming the social and psychological obstacles related to vaccinating of non-sexually active young girls against HPV.
The financial costs of the vaccination need also be considered. Three vaccination injections will cost 3 times 125 euro or 375 euro per girl. The high cost of HPV vaccines is an important barrier to access. It is not known if there will be a reduced price for developing countries. The effectiveness of this vaccination can only be assessed about twenty to thirty years after introduction. Meanwhile cervical cancer screening needs to be continued for the near future. Well-organized cervical cancer screening programs that achieve high coverage and include effective follow-up and treatment of women with abnormal cytology have been proven to reduce cervical cancer incidence by over 80%. In countries with widespread effective cytological screening programs (such as Denmark, Finland, Iceland, the Netherlands and the United Kingdom), the benefit of adding vaccines to screening programs will be limited in terms of reducing mortality related to cervical cancer (WHO, Regional Office for Europe 2008).
In Suriname, even if funding is found to vaccinate young women on a large scale and the health system is able to cover women living in the rural areas and the interior, HPV vaccination will need to be complemented with screening methods, like Pap smear and visual inspection with acetic acid (VIA). The Global Reproductive Health Strategy to accelerate progress towards the attainment of international development goals and targets also states that, "because of the close links between different aspects of reproductive and sexual health, interventions in one area are likely to have a positive impact on others. It is crucial for countries to strengthen existing services and use them as entry points for new interventions, looking for maximum synergy." HPV vaccination has the potential to build synergy among immunization, cancer control and sexual and reproductive health programs, including those for adolescents (WHO, 2006).
A not yet proven theory assumes that there is no real life evidence yet that the vaccination against HPV, will indeed reduce the incidence of cervical cancer. The theory claims, that the main mechanism to fight off HPV and prevent cancerous growth is the immune system of a person. HPV only attaches itself to already existing malignant growth. HPV is consequently not the cause of the generation of abnormal cells and vaccination against HPV will only prevent the attachment of the virus to cells which are growing irregularly. Vaccination will therefore have no impact on the occurrence of cervical cancer. (Röver D.L. 2009) This assumption has not been confirmed yet by research.
The third strategy to fight the incidence of cervical cancer is to broadly apply screening programs. In this secondary prevention, well-planned and well conducted screening programs for early detection need to be implemented and become an

integral part of existing health programs. This study indicates that the secondary prevention or regular preventive screening can significantly prevent positive Pap smears by focusing on women who never did a Pap smear before, meaning focusing on non-screened sexual active women especially found in poorly covered geographical areas. Preventive cervical screening programs should also be directed toward women with behavioral proxies for exposure to HPV; early sexual initiation; a relatively high number of children, young age at first pregnancy, low educational levels, specific hygiene practices and if known, couples with identified high-risk lifestyles for example having multiple sex partners.
In sum, an integral cervix cancer prevention program in Suriname should include education about risk behaviors, the possibility to vaccinate and a widely and easily accessible screening program. In the design of all these preventive measures, due respect must be given to the impact of the culture and sub cultures of the target groups on opinions and behaviors regarding each of the specific measures.

Fear and participation

Studies have shown that fear is one of the reasons why some women do not participate in preventive screening programs. This is supported by this study. The mortality-related health promotion campaigns for preventive cervical cancer screening may unintentionally increase mortality salience by increasing fear and subsequent avoidance. Thus, such campaigns may discourage among high fear intensity women the very preventive screening behavior or risk avoidance behavior, promoted by the campaign. Studies are needed to evoke the optimal level of fear, the level that motivates prevention and screening behavior. In addition, studies are needed about the other reasons mentioned for non-participation. Fylan (1998) mentions; administrative failures, inconvenient clinic times, lack of awareness of the test's indications and benefits, considering oneself not to be at risk of cervical cancer and fear of embarrassment, pain, or the detection of cancer, anxiety caused by receiving an abnormal cervical smear result and poor understanding of cervical screening procedures. Training of health workers and fine tuning of their empathy regarding assessment and dealing with emotions, especially fear for the test result, is crucial to have high fear intensity women participate in preventive screening programs.

Fear buffering

The Terror Management Theory (TMT) differentiates between two defense mechanisms to cope with mortality fear: worldview validation and self-esteem. This theory has been supported in tens of studies. Terror management theory indicates that despite the awareness of personal mortality, the women maintained psychological protection by enhancing their faith and their cultural worldviews. The experimental study showed that self-esteem moderated the effect of screening methodology on fear and world view defense. Thus, the fear evoked by both

screening methods depended on women's self-esteem. Although the terror management theory provides partial explanation for the experiences of fear among women who are waiting to be examined on cervical cancer, it does not explain why the two defense mechanisms fail to buffer fear in high intensity fear women waiting to be screened with the VIA methodology. This observation may imply that the defense mechanisms are not perfect: When fear becomes too high, they no longer are effective. This might be related to the fact that this study was done in a real policlinic situation which is different than laboratory imagined situations. Follow-up empirical studies are needed to expand or refine TMT given the differences found between the polyclinic reality, this study, and the studies using imagined situations as manipulation.

One research question concerns the activation of distal defenses and other means to cope with the fear of death at different levels of threat or mortality salience. Women who experience higher fear intensities especially in the VIA methodology screening need to have a high self-esteem to buffer the fear and in the very high fear intensity women, self-esteem is not sufficient to protect them from experiencing the high levels of fear. This brings up the question on the optimal level of fear in the fight against cervical cancer. On the one hand, fear is needed to motivate women to get screened. On the other hand, too much fear seems to be counterproductive. In addition, when women are already in the waiting room waiting for a PAP screening, fear might only have a function to motivate them to get the results after a few weeks. However, waiting for the VIA screening, fear lost its function and might only be regarded as a side-effect.

The relevant questions on fear remain: What level of fear can be considered low, moderate and high and which range will be counterproductive? Follow up research is therefore needed to determine:

- What level of fear evokes the response in women to reject the message (Shehryar & Hunt, 2005) and avoid seeking diagnostic information and screening?
- What fear level does not allow a person to suppress the fear thought from coming into focal attention notwithstanding proximal and distal defense mechanisms?
- Can real life fear priming condition research provide empirical support for the so-called U- shaped response of self-protective behaviors theory proposed by Janis (1967)? That is, behavioral response to fear would depend on its intensity that low levels of fear would lead to inaction, moderate levels would produce self-protective behavior, and high levels would result in counterproductive defensive responses.

Summary

Fear and Cervical cancer screening

Summary

Fear and cervical cancer screening

As study about risk behavior, coping with fear and dead among women confronted with screening for cervical cancer through the Pap smear and VIA methodology.
Study justification
There is still a lot of research needed regarding behavioral and psychological aspects and cervical cancer. In Suriname, no such research has ever been done before. This study provides insight in risk factors, fear among participants and mom-participants of a national screening for cervical cancer, coping with fear and fear of death.

Study results

The study of behavioral aspects of 4,898 women who participated in the first national Pap smear campaign in Suriname showed that educational level significantly distinguishes women with positive and negative Pap smear results from those with a negative Pap smear.
Women with a higher level of education exhibit the following behaviors:

- they tend to become sexually active later,
- they get children later in life,
- they have fewer children, and
- they are more likely to use a condom.

This reduces their chance of getting HPV, the most important risk factor in developing cervical cancer.
A significant difference was found with regard to Pap smear results and ethnicity in that Maroon and Creole women show significantly more positive results. Their first intercourse is at a very young age and they have a greater number of children. Both of these variables are significantly correlated with positive Pap smear results. Among Maroon women, practices related to hygiene and mourning seems to increase their likelihood of contracting cervical cancer. No significant links were found between the use of oral contraceptives, condom use and smoking on the one hand and cervical cancer on the other. Other studies do not shed light on this either.

Identified high-risk groups

This study identified the highest risk groups for cervical cancer to be:

1. women who start sexual intercourse early , particularly under the age of 12
2. women with high parity;
3. women who become pregnant at an early age ,particularly under the age of 14
4. women with low educational level.

Analysis of non-participation women on fear

Reasons for non-participation of women who were aware of the examination were also considered. Anxiety was measured using a four-point anxiety scale, indicating significantly higher fear intensity among non-participants.
In contrast with previous studies in other countries, no link between fear and educational level was found. Furthermore, more women who did not participate in the screening for cervical cancer reported a more and stronger fear for the screening. These results suggest that high fear among Surinamese women can result in avoidance of the screening for cervical cancer.

Self-esteem, Worldview and Fear of Death

It is assumed that waiting for the result of a screening for cervical cancer, makes women aware of the their risk of having cervical cancer as well as their mortality. If the consciousness of our mortality is of importance among women in the waiting room of the policlinic of Stichting Lobi, waiting to be screened for cervical cancer has been studied in a field experiment. Two ways of screening for cervical cancer, the VIA and Pap smear methodology, have been compared on the induction of fear among women in the waiting room.
Because the women in the VIA procedure get their result instantly, they will have a higher mortality salience compared to the women waiting to be examined by the Pap smear methodology who get their result in 4 to 6 weeks. It can be assumed that the women in the VIA procedure will have stronger psychological responses to cope with their mortality salience .
The Terror Management Theory (TMT) differentiates between two defense mechanisms to cope with mortality fear: worldview validation and self-esteem.
According to the TMT, both are able to buffer against fear.
The results show, that self-esteem moderates the effect of screening methodology on fear and world view defense. The terror management theory provides at least a partial explanation for the experiences of fear among women who are waiting to be examined on cervical cancer.

Samenvatting

Fear and Cervical cancer screening

Samenvatting

Angst en cervixkankerscreening

Angst en screening voor baarmoederhalskanker: Een onderzoek naar risicogedrag, angst voor de screening en omgaan met deze angst.

Verantwoording van het onderzoek

HPV is een seksueel overdraagbaar virus die de cellen van de cervix infecteert en deze langzaam veranderd waardoor er uiteindelijk kanker kan ontstaan. HPV's of het Human papilloma virussen bestaan uit een groep van ongeveer 100 typen en bij infectie met bijvoorbeeld HPV 16, 18, 31 of 45 kan de kans worden verhoogd op relatief milde cellulaire veranderingen die uiteindelijk maligne kunnen worden.
Met meer dan 500.000 nieuwe gevallen van baarmoederhalskanker per jaar in de wereld, is deze kanker soort op de twee plaats na borstkanker. Het risico om baarmoederhalskanker te krijgen in Latijns-Amerika en het Caribische gebied is ongeveer zes keer groter in vergelijking met West-Europa. De incidentie in Latijns Amerika en het Caribische gebied, waaronder Suriname is 30 of meer per 100.000 vrouwen. Het gemiddelde sterfte cijfer als gevolg van baarmoederhalskanker in Latijns America en het Caribische gebied is ongeveer 5 doden per 100.000 vrouwen.
Er is nog veel onderzoek nodig naar de relatie tussen gedrag, psychologische aspecten en baarmoederhalskanker. In Suriname is een dergelijk onderzoek nimmer gedaan. Dit onderzoek verschaft inzicht in risicofactoren, angst bij participanten en niet-participanten aan een nationaal onderzoek naar baarmoederhalskanker en het omgaan met angst en angst voor de dood.

Onderzoeksresultaten

Het onderzoek naar risicofactoren bij 4.898 vrouwen die participeerden in de eerste nationale baarmoederhalskanker screeningcampagne in Suriname, gaf aan dat opleiding een significante factor is die vrouwen met een positieve en een negatieve onderzoeksuitslag onderscheidt.
Vrouwen met een hoger opleidingsniveau vertonen het volgende gedrag:

- zij hebben de neiging om later seksueel actief te worden;
- zij krijgen hun kinderen later;
- zij krijgen minder kinderen, en
- zij gebruiken vaker een condoom.

Dit vermindert hun kans om HPV op te lopen, de belangrijkste risicofactor voor baarmoederhalskanker. Een belangrijk verschil werd gevonden in Pap smear testuitslagen en etniciteit, waarbij Marron vrouwen en Creoolse vrouwen significant vaker een positief resultaat hebben. Zij hebben op een jongere leeftijd hun eerste seksuele omgang en hebben een groter aantal kinderen. Beide variabelen zijn

significant gecorreleerd met positieve Pap-smear uitslagen. Bij Marron vrouwen lijken gewoontes in verband met hygiëne en rouw hun risico op baarmoederhalskanker verder te vergroten. Geen belangrijke verbanden werden gevonden tussen het gebruik van orale anticonceptie, condoomgebruik en roken aan de ene kant en de onderzoeksuitslag voor baarmoederhalskanker aan de ander kant. Andere onderzoeken geven hieromtrent evenmin een eenduidig beeld.

Geïdentificeerde hoog risico groepen

In dit onderzoek zijn de vrouwen die het meeste risico lopen op het krijgen van baarmoederhalskanker geïdentificeerd:

1. vrouwen die vroeg starten met seksuele omgang, met name onder de leeftijd van 12 jaar;
2. vrouwen met een groot aantal zwangerschappen;
3. vrouwen die op jonge leeftijd zwanger zijn geraakt, met name onder de leeftijd van 14 jaar;
4. vrouwen met een lagere school opleiding.

Angst bij niet participerende vrouwen

De redenen voor het niet participeren in het onderzoek door vrouwen die wel op de hoogte waren van het baarmoederhalskankeronderzoek werden ook bestudeerd. Angst werd op een schaal van vier punten gemeten, waarbij significant hogere angstintensiteiten bleken onder niet-participanten in vergelijking met participanten. In tegenstelling tot eerder onderzoek in andere landen, werd er geen relatie aangetroffen tussen angst en opleidingsniveau. Verder bleek dat van de vrouwen die niet mee hadden gedaan aan de baarmoederhalskanker onderzoek, er meer een sterke angst voor de screening rapporteerden. Deze resultaten suggereren dat bij Surinaamse vrouwen een hoge angst voor screening kan leiden tot het vermijden van de screening naar baarmoederhals kanker.

Zelfvertrouwen, Wereldbeeld en Angst voor de dood

Angst voor het onderzoek zal zich juist ook manifesteren in de wachtkamer, vlak voorafgaand aan de screening. Er is ervan uitgegaan dat het wachten op de uitslag van het onderzoek naar baarmoederhalskanker, de vrouwen bewust maakt van het feit dat ze het risico lopen baarmoederhalskanker te hebben alsook van hun mortaliteit. Of de herinnering aan onze sterfelijkheid en mortaliteit een rol speelt bij vrouwen in de wachtkamer voor een baarmoederhalskankeronderzoek, werd in een veldexperiment in de Lob kliniek onderzocht. Er werden twee screeningsmethoden met elkaar vergeleken op de angst die ze oproepen bij vrouwen in de wachtkamer: de VIA methode (visuele inspectie) en de Pap smear methode (een uitstrijkje). Op grond van de terror management theorie (TMT) kan

verwacht worden dat de ervaren angst afhangt van zelfvertrouwen en dat vrouwen hun wereldbeeld zullen verdedigen om met de angst te modereren.

Omdat de vrouwen in de VIA procedure hun screeningsresultaat direct krijgen, zullen zij sterker herinnerd worden aan hun mortaliteit in vergelijking met de vrouwen die wachten op de Pap smear procedure die hun screeningsresultaat na 4 tot 6 weken krijgen. De resultaten laten zien dat zelfvertrouwen het effect van de screeningsmethode op angst en wereldbeeld verdediging modereert. Het modereren van angst middels zelfvertrouwen en wereldbeeld verdediging hebben echter hun beperkingen omdat het modereren faalt bij hele hoge angstintensiteiten bij vrouwen die verwachten onderzocht te worden middels de VIA methode. Zo geeft de TMT tenminste een gedeeltelijke verklaring voor de ervaringen van angst bij vrouwen die wachten om onderzocht te worden op baarmoederhalskanker.

Word of thanks

Word of thanks

For my father the late Alex Leckie, ‘Paps’
My role model for humanity and patience

My mother Wanda Leckie – Tjon a Foek, ‘Mams’
Whose children always come first

My children Jason and Vanessa.
The onset of unconditional love at their birth
has marked my heart forever

And their mother, my spouse Nesta,
entwined with her at high school.
Thanks for your love and support

For the late dr. Gerard Leckie, my cousin, dear friend and colleague.
Finally, the fulfilment of a promise

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Curriculum Vitae

Curriculum Vitae

Imro Glenn Leckie was born on February 9, 1951, in Paramaribo, Suriname. He received his master degree (drs) in Psychology, with a focus on clinical psychology and behavioral and family therapy, at the University of Groningen, The Netherlands. He has worked at the Medisch Opvoedkundig Bureau (MOB) of the Ministry of Health in Suriname for six years, diagnosing and treating children and adolescents with learning and behavioral problems. He first worked part-time at Stichting Lobi, the responsible parenthood foundation in Suriname, as a counsellor for persons with behavioral problems, including sexuality problems. In 1982, he became the executive director of Stichting Lobi - a position he still holds. Under his management, Lobi has received a total of 14 awards from the International Planned Parenthood Federation/WHR. He was has been nominated twice nominated for an award by the Suriname office of the Pan American Health Organization (PAHO), a regional office of the World Health Organization. For his work accomplished in reproductive health he has been ordained officer of the Palm by the President of Suriname.